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MARCIA EDISON, and LINDA SERRA HAGEDORN 1

Cognitive Impacts of Intercollegiate Athletic Participation: Some Further Evidence

Controlling for precollege aptitude and other influences, male intercollegiate football and basketball players tended to have significantly lower levels of second-year writing skills and of third-year critical thinking and reading comprehension than did nonathletes or athletes in other sports. There was little evidence to suggest broad-based negative cognitive impacts for women athletes during the second or third years of college.

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Exploring Underrepresentation: The Case of Faculty of Color in the Midwest

This mixed-method study, conducted in eight Midwestern states with the participation of 487 campuses, focuses on the workplace environment for faculty of color with particular attention to problems of recruitment, retention, and development. The findings emphasize the need to persevere in efforts to diversify higher education faculty.

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Academic Technology and the Future of Higher Education: Strategic Paths Taken and Not Taken

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The Impact of Role Conflict and Ambiguity on Academic Deans

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DANIEL J. JULIUS, J. VICTOR BALDRIDGE, and JEFFREY PFEFFER 113

A Memo from Machiavelli

Many of the political processes and issues facing those who seek to be effective leaders in postsecondary institutions are timeless. In fact, political processes attendant to higher education governance and leadership are similar to issues discussed by Machiavelli, when he wrote *The Prince* for the reigning Medici in fifteenth-century Florence. We note that Machiavelli's secular and pragmatic approach to statecraft shocked many of his contemporaries.

ALBERTO F. CABRERA, AMAURY NORA, PATRICK T. TERENZINI, ERNEST PASCARELLA, and LINDA SERRA HAGEDORN 134

Campus Racial Climate and the Adjustment of Students to College: A Comparison between White Students and African-American Students

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Toward a Constructivist Framework for Guiding Change and Innovation in Higher Education

Most universities are presently engaged in reviewing their educational priorities and strategies. However, there appear to be few useful models to guide the actual decision-making processes. The author argues that the Adaptive-Generative Development framework, based on constructivist learning principles and knowledge of organizational dynamics, can be helpful in managing the introduction of academic change.

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The Chautauqua Movement: Revolution in Popular Higher Education
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Major Field and Person-Environment Fit: Using Holland's Theory to Study Change and Stability of College Students
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Getting to the Ivy League: How Family Composition Affects College Choice.

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Cognitive Impacts of Intercollegiate Athletic Participation

Some Further Evidence

There can be little doubt that intercollegiate athletics is one of the significant filters through which the public looks at American postsecondary education (e.g., Focus on American Athletics, 1995; Lapchick, 1989; Sperber, 1990; Telander, 1996; Thelin, 1994). The public's image of an institution as well as its attractiveness to prospective students are often influenced by the performance of its athletic teams (Mixon, 1995; Toma & Cross, 1996). For some time, however, there has been concern about the contribution of intercollegiate athletics to an individual's education (Ryan, 1989; Stone & Strange, 1989; Telander, 1996). There is a modest, but expanding, body of evidence on the impact of athletic participation on a range of college outcomes. Part of this evidence suggests that intercollegiate athletic participation may be negatively associated with such outcomes as involvement and satisfaction with the overall college experience, career maturity, clarity in educational and occupational plans, and principled moral judgment (Blann, 1985; Bredemeier & Shields, 1986; Kennedy & Dimick, 1987; Sowa & Gressard, 1983; Stone & Strange, 1989). Similarly,

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although collegiate athletic participation may enhance the social mobility of individuals from relatively low socioeconomic backgrounds (Sack & Thiel, 1979), both DuBois (1978) and Howard (1986) found little to indicate that being a college athlete is significantly associated with various objective indexes of career success (e.g., managerial effectiveness, job status). More recently Adelman (1990), analyzing the 1986 follow-up of the National Longitudinal Study of the High School Class of 1972, found that varsity athletes at age 32 had a higher rate of employment and home ownership than other former college students. On the other hand, athletes were less likely to indicate that their college education was relevant to their work or that they worked with ideas and were more likely to have lower socioeconomic occupations than they planned at age 19.

One of the difficult problems inherent in research on the educational impacts of intercollegiate athletic participation is separating the effects of recruitment from those of socialization. The students who participate in intercollegiate athletics are often "recruited" from a population of secondary school students with a constellation of school experiences, aptitudes, and socioeconomic contexts that are significantly different from nonathletes (Hood, Craig, & Ferguson, 1992; Pascarella & Smart, 1991). Consequently, unless one takes such background or precollege characteristics into account, it is likely that comparisons of athletes and nonathletes will be a proxy for individual differences at the time of entrance to college (i.e., recruitment effects) rather than representing the net socialization effects of athletic participation during college (Astin, 1970a, 1970b; Pascarella, 1987; Pascarella & Terenzini, 1991). Research that attempts to control for precollege differences between athletes and nonathletes suggests a number of positive impacts of athletic participation in noncognitive areas. For example, analyzing different iterations of a national sample from the Cooperative Institutional Research Program Astin (1993), Ryan (1989), and Pascarella and Smart (1991) report evidence indicating that athletic participation is linked with satisfaction with the overall college experience and may also increase motivation to complete one's degree, persistence in college, and actual bachelor's degree completion. Similarly, in a longitudinal study of 23 two- and four-year colleges from 16 different states Pascarella, Edison, Hagedorn, Nora, and Terenzini (1996) found that participation in intercollegiate athletics positively influenced gains in students' internal locus of attribution for success during the first year of college.

Somewhat surprisingly, relatively sparse attention has been paid to the impacts of intercollegiate athletic participation on the cognitive outcomes of college. The evidence that does exist focuses largely on the impact of being an athlete on academic achievement, typically defined operationally as cumulative grade point average. The generalization from the results of this modest body of research is that, when statistical controls are made for differences in academic aptitude, secondary school achievement, and other important background characteristics, the academic achievement of intercollegiate athletes is about the equivalent of their nonathlete counterparts (American College Testing Program & Educational Testing Service, 1984; Hood, Craig, & Ferguson, 1992; Pascarella & Smart, 1991; Smith & Dizney, 1966; Stuart, 1985). Furthermore this parity appears to persist even when the comparison groups are nonathletes and athletes in revenue-producing sports such as football and basketball (Hood, Craig, & Ferguson, 1992; Stuart, 1985).

There is some evidence to suggest that cumulative grades can be a reasonable proxy for how much one learns in college (e.g., Astin, 1993; Smith, 1992). However, it is also true that the reliability and validity of grades are threatened by a substantial number of confounding influences. These include the academic selectivity of the institution attended, the student's major field of study, individual course grading patterns, and even professorial personality and teaching style (Pascarella & Terenzini, 1991). Because of these potentially confounding influences it is hazardous to make comparisons of student learning and cognitive growth based on cumulative grades between institutions or; in some cases such as different academic majors, even within institutions.

Unfortunately, the body of evidence on the intellectual consequences of intercollegiate athletic participation that employs standardized measures of learning or cognitive development is still quite small. Moreover, the evidence is not totally consistent. For example, Winter, McClelland, and Stewart (1981) found that varsity athletic participation was positively associated with critical thinking gains in a liberal arts college. Conversely, Astin's (1993) analyses of a national sample indicated that athletic participation in college was negatively linked with scores on standardized graduate school admission tests, such as the verbal portion of the Graduate Record Examination, the Law School Aptitude Test, and the National Teachers' Examination.

The most recent study by Pascarella, Bohr, Nora, and Terenzini (1995) sought to bring some resolution to these conflicting results in the small body of existing evidence. Analyzing data on first-year students at 18 Division I and Non-Division I four-year institutions, their results generally support those of Astin (1993). Controlling for such confounding influences as precollege test scores, ethnicity, academic motivation, full or part-time enrollment, and institutional type, male football and basketball players had significantly lower end-of-first-year scores on standardized measures of reading comprehension and mathematics than either male nonathletes or male athletes participating in nonrevenue-producing sports (i.e., sports other than football or basketball). Controlling for the same confounding influences, women athletes had significantly lower end-of-first-year reading comprehension scores than did women nonathletes. However, the impact of first-year athletic participation on end-of-first-year reading comprehension was not the same for all women. The greatest comparative disadvantage over time accrued to those women athletes who began college with the lowest levels of reading comprehension.

The Pascarella et al. (1995) investigation provides some support for and extends Astin's (1993) findings by suggesting that, at least for freshmen men, the negative cognitive consequences of intercollegiate athletic participation are limited to revenue-producing sports. However, the study also has significant limitations. First, it traced the cognitive impact of athletic participation only as far as the end of the first year of college. It is not clear that similar impacts would persist in subsequent years of college. Second, although the study took into account a substantial number of potential confounding influences, it failed to control for differences in the academic experiences (e.g., kinds of coursework taken, time spent studying) of intercollegiate athletes and other students. It may well be that differences in the cognitive impact of college for athletes and nonathletes are largely a function of differences in their academic experiences (Pascarella et al., 1995).

The present investigation sought to extend further Astin's (1993) findings and address the limitations in the Pascarella et al. (1995) study by (1) estimating the cognitive impacts of intercollegiate athletic participation in the second and third years of college; and (2) effecting controls for students' academic experiences as well as their background characteristics. Specifically, the study sought to estimate the total and direct effects of athletic participation on standardized measures of science reasoning and writing skills during the second year of college and on standardized measures of reading comprehension and critical thinking in the third year of college. The study also sought to answer a number of other questions that have typically not been addressed in the existing literature. First, are any negative cognitive consequences of intercollegiate athletics the same for all sports or are they largely confined to athletes in revenue-producing sports such as football and basketball? Second, are any cognitive impacts of athletic participation the same for women as they are for men? Third, are the cognitive impacts of intercollegiate athletics the same for all students or do they differ in magnitude for students with different background characteristics (e.g., precollege ability, ethnicity, social origins) or in different institutional contexts (e.g., NCAA Division I versus Non-Division I schools, the average academic ability of the institution's student body)?

Method

Institutional Sample

The initial sample was selected from 18 four-year and 5 two-year colleges and universities located in 16 different states throughout the country. Institutions were selected from the National Center on Educational Statistics IPEDS data base to represent differences in colleges and universities nationwide on a variety of characteristics. These characteristics included institutional type and control (e.g., private and public research universities, private liberal arts colleges, public and private comprehensive universities, two-year colleges), size, location, commuter/resident mix, and the ethnic composition of the undergraduate student body. The resultant institutional sample was quite diverse and ranged from some of the most selective private and public institutions in the country to essentially open-admissions institutions. Because this study focused on intercollegiate athletic participation, and several of the two-year institutions did not sponsor such programs, the analyses we report are based on student samples from the 18 four-year colleges and universities studied.

Student Sample

The individuals in the samples were 562 second-year men and 1056 second-year women, and 390 third-year men and 747 third-year women who participated in the second and third follow-ups of the National Study of Student Learning (NSSL). NSSL was a large, longitudinal investigation of the factors that influence learning and cognitive development in college. The initial sample was selected randomly from the incoming first-year class at each participating institution. The students in the sample were informed that they would be participating in a national longitudinal study of student learning and that they would receive a cash stipend for their participation in each data collection. They were also informed that any information they provided would be kept confidential and never become part of their institutional records.

Initial Data Collection

The initial data collection was conducted in the fall of 1992 with 3,331 students from the 18 four-year institutions participating. This first data collection lasted approximately three hours, and students were paid a stipend of $25 for their participation. The collected data included an NSSL precollege survey that sought information on student demographic characteristics and background as well as aspirations, expectations of college, and orientations toward learning. Participants also completed Form 88A of the Collegiate Assessment of Academic Proficiency (CAAP), developed by the American College Testing Program (ACT) to assess selected general skills typically acquired by students during the first two years of college (ACT, 1989). The total CAAP consists of five 40-minute, multiple-choice test modules; reading comprehension, mathematics, critical thinking, writing skills, and science reasoning. The reading comprehension, mathematics, and critical thinking modules of the CAAP were administered during the fall 1992 data collection. A brief description of each follows.

The CAAP reading comprehension test is composed of 36 items that assess reading comprehension as a product of skill in inferring, reasoning, and generalizing. The test consists of four 900-word prose passages designed to represent the level and kinds of reading students commonly encounter in college curricula, including topics in fiction, humanities, social sciences, and natural sciences. The KR-20 internal consistency reliability for the reading comprehension test ranges between 0.84 and 0.86 (ACT, 1989).

The mathematics test consists of 35 items designed to measure a student's ability to solve mathematical problems. The test emphasizes quantitative reasoning, rather than formula memorization, and includes algebra (four levels), coordinate geometry, trigonometry, and introductory calculus. The KR-20 reliability coefficients for the mathematics test range between 0.79 and 0.81 (ACT, 1989).

The critical thinking test is a 32-item instrument designed to measure a student's ability to clarify, analyze, evaluate, and extend arguments. The test consists of four passages in various formats (e.g., case studies, debates, dialogues, experimental results, statistical arguments, editorials). Each passage contains a series of arguments that support a general conclusion and a set of multiple-choice test items. The KR-20 reliability coefficients for the critical thinking test range between 0.81 and 0.82 (ACT, 1989). In a pilot test of instruments for use in the NSSL, the critical thinking test of the CAAP correlated 0.75 with the total score on the Watson-Glaser Critical Thinking Appraisal (Pascarella et al., 1995).

Follow-up Data Collection

The first follow-up data collection was conducted in spring 1993. This data collection took about three and one-half hours, and included Form 88B of the CAAP reading comprehension, mathematics, and critical thinking modules; The College Student Experiences Questionnaire (CSEQ) (Pace, 1984), and a follow-up instrument developed for the

NSSL. The CSEQ and the NSSL follow-up instrument were used to measure a wide range of students' classroom and out-of-class experiences. These included such factors as place of residence, number of credit hours completed, kinds of course work taken, amount of time spent studying, on- and off-campus work responsibilities, and participation in intercollegiate athletics.

Students were paid a stipend of $35 for their participation in the first follow-up data collection. Of the original sample of 3,331 four-year college students who participated in the fall 1992 testing, 2,416 (867 men and 1,549 women) participated in the spring 1993 data collection, for a first-year follow-up response rate of 72.53%. To adjust for potential sample bias by sex, race/ethnicity, and institution, however, a sample weighting algorithm was developed. Follow-up participants in each institution were weighted up to the institution's end-of-first-year population by sex (male or female) and race/ethnicity (Caucasian, Black, Hispanic, other). Thus, for example, if institution A had 100 Black women in its first-year class, and 25 Black women in the sample, each Black woman in the sample was given a sample weight of 4.00. An analogous weight was computed for participants in each sex × race/ethnicity cell in each institution. Applying sample weights in this manner cannot adjust for nonresponse bias, but it does provide at least some adjustment for bias in the samples we actually analyzed by ethnicity, sex, and institution.

Second Follow-Up Data Collection

The second follow-up of the NSSL sample was conducted in the spring of 1994. Students were paid a stipend of $45 for their participation. Similar to the first follow-up, extensive measures of students' second-year experiences were taken from their responses on the CSEQ and the NSSL follow-up survey. Students also completed Form 88A of the CAAP science reasoning and writing skills modules.

The CAAP science reasoning module is a 45-item, 40-minute test designed to measure students' skills in scientific reasoning. The contents of the test are drawn from biology, chemistry, physics, and the physical sciences (e.g., geology, astronomy, and meteorology). The test emphasizes scientific reasoning skills rather than recall of scientific content or a high level of skill in mathematics or reading. The science reasoning test consists of 8 passages, each of which contains scientific information and a set of multiple-choice test questions. Response stimuli for the passages included data representation (graphic and tabular material similar to that found in science journals and texts); research summaries (descriptions of one or several experiments); and conflicting viewpoints (students are presented with several hypotheses or views that are mutually inconsistent because of different premises, incomplete or disputed data, or different interpretations of data). Reliability estimates for the science reasoning module range between 0.76 and 0.87 (ACT, 1991).

The CAAP writing skills module is a 72-item 40-minute test measuring students' understanding of the conventions of standard written English in usage and mechanics (punctuation, grammar, sentence structure), and rhetorical skills (strategy, organization, and style). Spelling, vocabulary, and rote recall of grammatical rules are not tested. The test consists of 6 prose passages, each of which is accompanied by a set of 12 multiple-choice test items. A range of passage types is used to provide a variety of rhetorical situations. Items that measure usage and mechanics offer alternative responses, including "no change," to underlined portions of the text. The student must decide which alternative employs the conventional practice in usage and mechanics that best fits the context. Items that measure rhetorical skills may refer to an underlined portion of the test or may ask a question about a section of the passage or about the passage as a whole. The student must decide which alternative response is most appropriate in a given rhetorical situation. The writing skills test has reliability estimates between 0.93 and 0.95 (ACT, 1991).

Of the 867 men who participated in the first follow-up (spring 1993), 562 participated in the second follow-up (spring 1994), for second-year male response rate of 64.8%. Of the 1549 women who participated in the first follow-up, 1056 participated in the second follow-up for a second-year female response rate of 68.2%. A second weighting algorithm was developed which was analogous to that applied in the first year to adjust for response bias by sex, race/ethnicity, and institution.

Third Follow-Up Data Collection

The third follow-up of the NSSL sample took place in the spring of 1995. Students were paid a $50 stipend for their participation. Measures of students' third-year experiences were taken from their responses on the CSEQ and the NSSL Follow-Up Survey. Participants also completed Form 88B of the CAAP reading comprehension and critical thinking modules.

Of the 562 men who participated in the second follow-up (spring 1994), 390 participated in the third follow-up (spring 1995), for a third-year male response rate of 69.4%. Of the 1056 women who participated in the second follow-up, 747 participated in the third follow-up, for a third-year female response rate of 70.7%. A third weighting algorithm was developed to adjust for sample response bias by sex, race/ethnicity, and institution.

Independent Variables

Based on a question in each of the NSSL follow-up questionnaires it was determined that 48 of the second-year men participated in a major intercollegiate revenue-producing sport (that is, football or basketball), 90 participated in an intercollegiate sport other than football or basketball, and 424 indicated that they had not participated in an intercollegiate sport during the second year of the study. In the third year of the study 37 men participated in intercollegiate football or basketball, 60 participated in an intercollegiate sport other than football or basketball, and 293 did not participate in intercollegiate athletics. Of the 1056 second-year women in the sample, 146 had participated in an intercollegiate sport during the second year of college and 910 had not. Of the 747 third-year women in the sample 103 participated in an intercollegiate sport during the third year of college and 644 had not. Because it is debatable that any women's sports are major revenue producers, all women intercollegiate athletes were grouped together. Eight of the 18 four-year institutions in the sample were identified as having Division I athletic programs, whereas 10 were non-Division I (that is, Division II or III). Both male and female athletes were approximately equally divided between Division I and non-Division I institutions.

Dependent Variables

There were four dependent variables in the study, two assessed at the end of the second year of the study and two assessed at the end of the third year of the study. The two end-of-second-year dependent variables were scores on the CAAP science reasoning and writing skills tests, while the two end-of-third-year dependent variables were scores on the CAAP reading comprehension and critical thinking tests.

As previous research has indicated, a number of extraneous or confounding factors might covary with a student's cognitive development as well as his or her likelihood of participating in intercollegiate athletics (Astin, 1993; Pascarella & Smart, 1991; Pascarella et al., 1995). Consequently, the study also incorporated a number of potentially confounding or control variables. In selecting control variables for our analyses we were guided by evidence on the factors independently influencing learning and cognitive growth in college (Astin, 1977, 1993; Astin & Panos, 1969; Kuh, 1993; Pascarella, 1985; Pascarella & Terenzini, 1991). Two basic categories of potentially confounding, or control variables were considered—precollege characteristics and measures of students' experiences in college. The individual precollege characteristics included: precollege (fall 1992) measures of cognitive development;

race/ethnicity (person of color/caucasian); socioeconomic status; precollege academic motivation; and sex.

The precollege measures of cognitive development took two forms. In predicting end-of-third-year reading comprehension and critical thinking we had exact parallel precollege (fall 1992) measures. These were employed as controls for precollege level of reading comprehension and critical thinking, respectively. In the prediction of end-of-second-year science reasoning and writing skills we did not have an exact parallel precollege measure. However, a simple composite of precollege (fall 1992) reading comprehension, mathematics, and critical thinking had strong correlations (0.72 and 0.77) with end-of-second-year science reasoning and writing skills. Consequently, we employed this composite measure of cognitive development or ability as a control in the prediction of end-of-second-year science reasoning and writing skills. This composite measure was constructed by first standardizing all three modules and then summing across the standardized scores. The composite cognitive ability measure had an alpha reliability of 0.83. Students' experiences in college included total credit hours completed through the second or third year of college; average hours per week spent studying during the second or third years of college; average hours per week spent in on- or off-campus work during the second or third years of college; on- or off-campus residence during the second or third years of college; and the number of courses taken through the second or third years of college in five areas: social sciences, mathematics, technical/pre-professional, arts and humanities, and natural sciences and engineering.

Because evidence also suggests that the overall cognitive ability of an institution's student body can influence the climate of an institution (Pascarella & Terenzini, 1991), an estimate of aggregate student cognitive ability was included as a control variable. This was estimated with the average precollege (fall 1992) composite cognitive ability or development score (based on the CAAP reading, math, and critical thinking modules) for the sample of incoming students at each of the 18 institutions in the study. Every student in the sample was then assigned the mean of each estimate of student body cognitive development at his or her institution. Finally, because it was anticipated that the nature of athletic participation would be influenced by the level of competition, we also took into account whether or not the student was attending an institution with a Division I or a non-Division I athletic program. Operational definitions and, where appropriate, reliabilities of all variables are shown in Table 1.

TABLE 1

Variable Definitions

Category/Variable

Dependent Variables

End-of-Second-Year (Spring 1994) Science Reasoning: An individual's end-of-second-year score on the Collegiate Assessment of Academic Proficiency (CAAP) science reasoning module, developed by the American College Testing Program; alpha reliabilities = 0.76 – 0.87.

End-of-Second-Year (Spring 1994) Writing Skills: An individual's end-of-second-year score on the CAAP writing skills module; alpha reliabilities = 0.93 – 0.95.

End-of-Third-Year (Spring 1995) Reading Comprehension: An individual's end-of-third-year score on the CAAP reading comprehension module; alpha reliabilities = 0.84 – 0.86.

End-of-Third-Year (Spring 1995) Critical Thinking: An individual's end-of-third-year score on the CAAP critical thinking module; alpha reliabilities = 0.81 – 0.82.

Control Variables

Precollege (Fall 1992) Composite Academic Ability: An individual's precollege score on a composite of the CAAP reading comprehension, mathematics, and critical thinking modules; alpha reliability = 0.83. (Employed as an individual level control variable in the prediction of end-of-second-year science reasoning and writing skills.)

Precollege (Fall 1992) Reading Comprehension: An individual's precollege score on the (CAAP) reading comprehension module; alpha reliabilities = 0.84 – 0.86. (Employed as an individual level control variable in the prediction of end-of-third-year reading comprehension.)

Precollege (Fall 1992) Critical Thinking: An individual's precollege score on the CAAP critical thinking module; alpha reliabilities = 0.81 – 0.82. (Employed as in individual level control variable in the prediction of end-of-third-year critical thinking.)

Average Student Precollege (Fall 1992) Composite Academic Ability: Estimated by the average level of precollege composite academic ability in the sample at each of the 18 institutions in the study. Each student was given the mean score of the sample at his or her institution.

NCAA Division I or Non-Division I Institution: Each individual student in the study was coded "1" if he or she attended an institution classified by the National Collegiate Athletic Association as Division I and "0" if he or she attended a Non-Division I institution (for example, Division II or III).

Ethnicity: 1 = person of color, 0 = white

Precollege Academic Motivation: An 8-item, Likert-type scale (5 = strongly agree to 1 = strongly disagree) with an internal consistency reliability of 0.65. The scale items were based on existing research on academic motivation (e.g., Ball, 1977). Examples of constituent items are: "I am willing to work hard in a course to learn the material even if it won't lead to a higher grade," "When I do well on a test, it is usually because I was well-prepared not because the test was easy," "In high school I frequently did more reading in a class than was required simply because it interested me," and "In high school I frequently talked to my teachers outside of class about ideas presented during class."

Socioeconomic Status: Average of parental education and income.

Place of Residence: 1 = lived on-campus, 0 = lived off campus (designated separately for the second and third years of the study).

Cumulative Credit Hours Completed: Number of credit hours completed through the second or third years.

Average Hours Per Week Spent Studying: Single-item, 6-point self-report of average number of hours spent studying per week, where 1 = none, and 6 = more than 20 hours (designated separately for second and third years).

Average Hours Worked Per Week: Combination of average number of hours of on- and off-campus work per week during the school year, coded 1 = none, 9 = more than 35 (designated separately for second and third years).

Social Sciences Courses Taken: Cumulative number of college courses taken through the second or third years in anthropology, audiology/speech pathology, child and family studies, communications, economics, geography, history, political science, psychology, sociology, or social work.

Mathematics Courses Taken: Cumulative number of college courses taken through the second or third years in pre-algebra, algebra, calculus, statistics, computer science, geometry, matrix algebra, accounting, or business math.

TABLE 1 (*Continued*)

Category/Variable
Technical/Pre-professional Courses Taken: Cumulative number of college courses taken through the second or third years in drawing, drafting, architectural design, criminology, education, agriculture, business, physical therapy, pharmacy, physical education, nursing, or computer programming.
Arts and Humanities Courses Taken: Cumulative number of college courses taken through the second or third years in art history, art appreciation, studio art, dance, theater, music appreciation, music performance, composition or writing, English literature, foreign language, humanities, philosophy, linguistics, classics, or religious studies.
Natural Sciences and Engineering Courses Taken: Cumulative number of college courses taken through the second or third year in astronomy, botany, chemistry, physics, geology, zoology, microbiology, or engineering.
Independent Variables
Intercollegiate Athletic Participation (Men): Two dummy variables (coded 1 or 0): the first indicating participation in intercollegiate football or basketball and the second indicating participation in an intercollegiate sport other than football or basketball. The reference group (always coded 0) was nonathletes. (Designation was done separately for the second and third years of the study.)
Intercollegiate Athletic Participation (Women): A dummy variable coded: 1 = participated in intercollegiate athletics; 0 = nonathletes. (Designation was done separately for the second and third years of the study.)

Analyses

In the first stage of the analyses we estimated the total and direct linear effects of athletic participation on each of the four dependent measures (that is, end-of-second-year science reasoning and writing skills and end-of-third-year reading comprehension and critical thinking). Separate analyses were done for men and women. Total effects were estimated using reduced-form equations (Alwin & Hauser, 1975). Each dependent measure was regressed on the dummy variable(s) representing intercollegiate athletic participation and all other variables considered causally concurrent or antecedent. These included: individual level precollege cognitive development or ability, average student precollege cognitive ability at the institution attended, ethnicity, socioeconomic status, precollege academic motivation, and whether the institution attended had an NCAA Division I or non-Division I athletic program. Direct effects were estimated by regressing each dependent measure on the athletic participation dummy variable(s) and all other variables in the analytic model (i.e., the variables employed to estimate total effects plus the college experience variables: credit hours completed, on- or off-campus residence, hours studied, work responsibilities, and course-taking patterns in five areas). Indirect effects of athletic participation on the four cognitive outcomes, transmitted through the college experience variables, were estimated by subtracting direct from total effects (Alwin & Hauser, 1975). Based on the suggestion of Pascarella et al. (1995), we anticipated that any cognitive influence of athletic participation would be largely explainable by differences between athletes and nonathletes in their experience of college. Thus, we hypothesized that any significant negative total effects of athletic participation would become nonsignificant when the college experience variables were entered into the equation.

In the second stage of the analyses, we tested for the presence of conditional effects of athletic participation on cognitive development. A series of cross-product (or interaction) terms was computed between the athletic participation dummy variable(s) and each of the individual level precollege variables plus the two institutional measures (i.e., aggregate student body cognitive ability and Division I/non-Division I status). These were then added to the direct effects equation. A statistically significant increase in explained variance (R^2) attributable to the entry of the set of cross-product terms (over and above the direct effects equation) would indicate that the net effects of athletic participation on cognitive development differ in magnitude for different kinds of students (Pedhazur, 1982).

The weighted samples, adjusted to actual sample sizes to obtain correct standard errors, were used in one set of analyses. A parallel set of analyses was conducted with the unweighted samples. The results of both sets of analyses are reported.

Results

Second Year

Table 2, Part A, shows the estimated total and direct effects of male athletic participation on end-of-second-year science reasoning and writing skills scores. Male nonathletes were always coded 0, so the regression coefficients for the male football and basketball players and the male athletes in other sports are in relationship to the male nonathletes. As Part A of Table 2 shows, with controls made for potential confounding influences, male athletes in nonrevenue-producing sports had end-of-second-year science reasoning and writing skills scores that were not significantly different from those of nonathletes. Football and basketball players, however, had end-of-second-year writing skills scores that were significantly lower than those of nonathletes. (The total effect of participation in football or basketball on writing skills in the unweighted sample [b = –0.878; beta = –0.047] was significant at $p < 0.10$.)

Part B of Table 2 shows the estimated total and direct effects of female athletic participation on end-of-second-year science reasoning and writing skills. As the Table indicates women athletes did not differ significantly from nonathletes when potential confounding influences were taken into account.

TABLE 2

Estimated Total (T) and Direct (D) Effects of Intercollegiate Athletic Participation on End-of-Second-Year Science Reasoning and Writing Skills[a]

	Unweighted Sample				Weighted Sample			
	Science Reasoning		Writing Skills		Science Reasoning		Writing Skills	
Group	T[b]	D[c]	T[b]	D[c]	T[b]	D[c]	T[b]	D[c]
PART A: MEN								
Football and basketball players	–0.155	–0.235	–0.878	–1.044*	–0.845	–0.893	–1.777**	–1.758**
	–0.008	–0.012	–0.047	–0.056	–0.041	–0.044	–0.088	–0.087
Athletes in other sports	0.253	0.002	–0.395	–0.377	0.581	0.517	–0.055	–0.069
	0.018	0.006	–0.026	–0.027	0.037	0.033	–0.004	–0.004
R^2 Total model	0.604**	0.628**	0.583**	0.600**	0.627**	0.644**	0.619**	0.636**
PART B: WOMEN								
Athletes	0.279	0.225	–0.375	–0.498	–0.215	–0.218	–0.468	–0.589
	0.020	0.016	–0.026	–0.035	–0.014	–0.014	–0.028	–0.035
R^2 Total model	0.571**	0.593**	0.609**	0.624**	0.549**	0.579**	0.569**	0.578**

[a] Top number is the metric or unstandardized coefficient; bottom number is the standardized coefficient; reference group is nonathletes. Complete regression results are not shown in the interest of brevity; however they are available from the first author.

[b] Controlling for: individual precollege composite academic ability; the average student body precollege composite academic ability at the institution attended; ethnicity; socioeconomic origins; precollege academic motivation; NCAA Division I or non-Division I institution.

[c] Controlling for: all variables in superscript "b" plus: on- or off-campus residence; hours per week spent studying; work responsibilities; total credit hours taken; courses taken in natural sciences and engineering, mathematics, social sciences, arts and humanities, and technical/preprofessional areas.

* $p < 0.05$. ** $p < 0.01$

The indirect effects of athletic participation on end-of-second-year science reasoning and writing skills can be obtained by subtracting the regression coefficients in the direct effects column (D) from the corresponding coefficients in the total effects column (T). In all cases the indirect effects were quite small in magnitude (typically less than 0.01 in standardized form). This suggests that little if any of the net influence of athletic participation on science reasoning or writing skills is attributable to differences in the experience of college by athletes and nonathletes.

Third Year

Table 3, Part A, summarizes the estimated total and direct effects of male athletic participation on end-of-third-year reading comprehension and critical thinking. Consistent with the results for the second year of the study, in the presence of controls for confounding influences male athletes in nonrevenue sports had end-of-third-year reading comprehension and critical thinking scores that were not significantly different from those of nonathletes. However, also consistent with second-year findings, football and basketball players tended to have significantly lower net reading comprehension and critical thinking scores than did nonathletes. (The only exception to this was the direct effect of participation in football or basketball on reading comprehension in the weighted sample [b = –1.352, beta = –0.064), which was significant at $p < 0.10$.)

Part B of Table 3 shows the estimated total and direct effects of female athletic participation on end-of-third-year reading comprehension and critical thinking. With one exception, women athletes had net reading comprehension and critical thinking scores that were not significantly different from those of their nonathlete counterparts. In the weighted sample athletic participation had significant negative total and direct effects on end-of-third-year reading comprehension. The corresponding total and direct effects in the unweighted sample were in the same direction, but only about half as large in magnitude and not statistically significant.

As with the second-year results, the indirect effects of athletic participation tended to be quite small in magnitude. This once again suggests that the net influence of athletic participation on end-of-third-year reading comprehension and critical thinking is not explainable by differences between athletes and nonathletes in their experience of college. Indeed, in a substantial number of the analyses shown in Table 3 the direct effects of athletic participation are actually larger than the total effects.

Conditional Effects

In both the unweighted and weighted samples the addition of the sets of cross-products to the direct effects equations was associated with

TABLE 3

Estimated Total (T) and Direct (D) Effects of Intercollegiate Athletic Participation on End-of-Third-Year Reading Comprehension and Critical Thinking[a]

	Unweighted Sample				Weighted Sample			
	Reading Comprehension		Critical Thinking		Reading Comprehension		Critical Thinking	
Group	T[b]	D[c]	T[b]	D[c]	T[b]	D[c]	T[b]	D[c]
PART A: MEN								
Football and basketball players	−1.740*	−1.530*	−1.649**	−1.867**	−1.548*	−1.352	−1.636*	−2.249**
	−0.090	−0.079	−0.093	−0.105	−0.073	−0.064	−0.083	−0.114
Athletes in other sports	0.387	0.504	0.276	0.359	−0.402	−0.436	−0.405	−0.161
	0.025	0.032	0.019	0.025	−0.024	−0.026	−0.026	−0.010
R^2 Total model	0.567**	0.583**	0.563**	0.581**	0.537**	0.564**	0.572**	0.612**
PART B: WOMEN								
Athletes	−0.568	−0.651	0.316	0.256	−1.107*	−1.232*	0.266	0.183
	−0.034	−0.039	0.021	0.017	−0.059	−0.065	0.015	0.011
R^2 Total model	0.640**	0.646**	0.659**	0.668**	0.619**	0.634**	0.632**	0.649**

[a] Top number is the metric or unstandardized coefficient; bottom number is the standardized coefficient; reference group is nonathletes. Complete regression results are not shown in the interest of brevity; however, they are available from the first author.

[b] Controlling for: either precollege reading comprehension or precollege critical thinking; the average precollege composite academic ability at the institution attended; ethnicity; socioeconomic origins; precollege academic motivation; NCAA Division I or non-Division I institution.

[c] Controlling for: all variables in superscript "b" plus: on- or off-campus residence; hours per week spent studying; work responsibilities; total credit hours taken; courses taken in natural sciences and engineering, mathematics, social sciences, arts and humanities, and technical/preprofessional areas.

*$p < 0.05$. **$p < 0.01$

quite small and nonsignificant R^2 increases in the four dependent measures. This suggests that the net effects of intercollegiate athletic participation shown in Tables 2 and 3 are similar in magnitude for students with different precollege characteristics (e.g., precollege cognitive ability and academic motivation, ethnicity, socioeconomic status) and for students in different institutional contexts (e.g., institutions differing in the average cognitive ability of their undergraduates and institutions differing in NCAA Division I or non-Division I athletic program status).

Size of Effects

In order to estimate the size of the effects of intercollegiate athletic participation on cognitive development, we first used the information from the direct effects results in Tables 2 and 3 to compute the adjusted means for all comparison groups on the four outcome measures. We then carried out post-hoc comparisons using the Sheffe procedure (Pedhazur, 1982) to determine if there were also significant differences between male football/basketball players and male athletes in other sports on the four cognitive outcomes. The results of these analyses are summarized in Part A of Table 4. Net of confounding influences football and basketball players tended to have significantly lower scores than athletes in other sports in reading comprehension and critical thinking in the unweighted sample and in science reasoning, writing skills, and critical thinking in the weighted sample.

Taking only those pairwise comparisons among adjusted means that differed significantly (as shown in Table 4, Parts A and B), we then computed an estimated effect size between the means. Using a procedure suggested by Hays (1994), the difference between adjusted group means was divided by the pooled within-sample standard deviation. The resultant z-score expresses the difference between adjusted means as the fraction of a standard deviation. Using the area under the normal curve, we then converted these z-scores to a relative percentile point disadvantage for the lower of the two groups (Pascarella & Terenzini, 1991).

As Part A of Table 4 indicates, the average non-zero (statistically significant) cognitive disadvantage between male football and basketball players and their nonathlete counterparts ranged from –0.21 of a standard deviation to –0.43 of a standard deviation (average = 0.321 of a standard deviation). These converted to percentile point disadvantages (the lower number in parentheses in Table 4) of between –8.1 and –16.5 percentile points (average = –13.4 percentile points). Thus, if male nonathletes were on average scoring at the 50th percentile, male football and basketball players were on average scoring somewhere between the 41.9th and 33.5th percentiles. The largest disadvantages were on the

TABLE 4

Pooled Standard Deviations, Adjusted Means and Statistically Significant Effective Sizes for Athletes and Nonathletes on All Four Cognitive Outcomes[a]

Group	Unweighted Sample				Weighted Sample			
	Science Reasoning	Writing Skills	Reading Comprehension	Critical Thinking	Science Reasoning	Writing Skills	Reading Comprehension	Critical Thinking
PART A: MEN								
Pooled standard deviation	5.30	5.07	5.68	5.21	5.14	5.10	5.70	5.30
Adjusted means								
1. Football and basketball players	61.77	64.24^{d}	63.53^{de}	63.15^{*e}	60.81^{d}	63.05^{*e}	63.44	62.69^{*e}
2. Athletes in other sports	62.02	64.90	65.56^{e}	65.38^{e}	62.21^{d}	64.74^{e}	64.35	64.48^{e}
3. Nonathletes	62.00	65.28^{d}	65.06^{d}	65.02^{*}	61.69	64.81^{*}	64.79	64.94^{*}
Effect sizes for significant group differences[b]								
1 vs. 2			−0.357 (−13.9)	−0.428 (−16.6)	−0.272 (−10.3)	−0.331 (−13.0)		−0.338 (−13.2)
1 vs. 3		−0.205 (−8.1)	−0.269 (−10.5)	−0.359 (−14.0)		−0.345 (−13.5)		−0.425 (−16.5)
PART B: WOMEN								
Pooled standard deviation	4.79	4.98	5.69	5.14	4.41	4.83	5.40	4.94
Adjusted means								
1. Athletes	61.06	65.22	64.30	65.73	60.22	65.24	63.49^{f}	65.24
2. Nonathletes	60.84	65.72	64.95	65.48	60.44	64.65	64.72^{f}	65.06
Effect sizes for significant group differences[b]								
1 vs. 2							−0.228 (−8.9)	

[a] Adjusted means are based on the *direct effects* results reported in Tables 2 and 3. Groups with the same letter superscript (i.e., d, e, f) in each column are significantly different at 0.05; asterisked groups are significantly different at 0.01.

[b] Top number is the effect size, number in parentheses is the percentile point disadvantage of the lower group.

critical thinking scale. The average non-zero (statistically significant) cognitive disadvantage between male football and basketball players and male athletes in other sports ranged from −0.27 of a standard deviation to −0.43 of a standard deviation (average = 0.345 of a standard deviation). These converted to percentile point disadvantages of between −10.3 and −16.6 percentile points (average = −13.4 percentile points). Thus, if on average male athletes in nonrevenue sports were scoring at the 50th percentile, male football and basketball players were by comparison scoring at the 39.7th and 33.4th percentiles. Once again the largest comparative disadvantages for football and basketball players was on the critical thinking scale.

Part B of Table 4 summarizes the corresponding analyses for women. Overall only one significant disadvantage accrued to women athletes relative to their nonathlete counterparts. In the weighted sample women athletes had a disadvantage in reading comprehension of −0.23 of a standard deviation (−8.9 percentile points). Thus, if women nonathletes were on average scoring at the 50th percentile in reading comprehension, women athletes were scoring on average at the 41.1st percentile.

Summary and Conclusions

This 18-institution study sought to estimate the net effects of intercollegiate athletic participation on four standardized measures of cognitive development during the second and third years of college. The four cognitive measures were: end-of-second-year science reasoning and writing skills, and end-of-third-year reading comprehension and critical thinking. The study was able to control for an extensive array of potential confounding influences, including student precollege characteristics (i.e., academic/cognitive ability, academic motivation, socioeconomic status, and ethnicity); institutional context (i.e., the average academic ability of the undergraduate student body at the institution attended and the NCAA Division I or non-Division I status of the athletic program at the institution attended); and students' college experiences (i.e., on- or off-campus residence; hours per week spent studying; work responsibilities; total credit hours taken and amount of course work taken in five different areas).

The findings of the study suggest a number of general conclusions. First, with one exception, we found little evidence to suggest that women are cognitively penalized by participating in intercollegiate athletics. Net of confounding influences, women athletes tended to have levels of standardized cognitive development during the second and third years of college that were not significantly different from those of women nonathletes. The only exception to this general conclusion was in the area of reading comprehension. In the weighted sample estimates, women athletes had significantly lower end-of-third-year reading comprehension scores than did women nonathletes. However, this effect was quite modest in magnitude (less than 0.25 of a standard deviation) and was not found with unweighted sample estimates.

The Pascarella et al. (1995) study found a similar negative effect for women's athletic participation on end-of-first-year reading comprehension, and it also uncovered a significant conditional effect, suggesting that the greatest relative disadvantage in end-of-first-year reading comprehension accrued to those women athletes who entered college with low levels of reading comprehension. The present analyses, however, failed to replicate this conditional effect. Indeed, we found no evidence to suggest that any cognitive effects of intercollegiate athletic participation differed in magnitude for women with different precollege characteristics or for women in different institutional contexts.

Perhaps in part because one is able to separate men's athletics into revenue and nonrevenue-producing sports, a substantially different picture emerges in terms of the cognitive impacts of male athletic participation in the second and third years of college. The Pascarella et al. (1995) study found that men in intercollegiate revenue-producing sports (i.e., football and basketball) tended to be an outlier group in terms of cognitive growth during the first year of college. In their analyses, football and basketball players had significantly lower end-of-first-year reading comprehension and mathematics achievement than either male nonathletes or male athletes participating in sports other than football and basketball. However, no end-of-first-year cognitive differences were found between male nonathletes and male athletes in sports other than football and basketball.

The present study suggests that this early pattern of effects for football and basketball players appears to extend into the second and third years of college and to hold for somewhat different outcomes. In the presence of controls for confounding influences, male athletes in sports other than football and basketball had scores on end-of-second-year science reasoning and writing skills and on end-of-third-year reading comprehension and critical thinking that did not differ significantly from those of male nonathletes. Such findings, when considered along with those of Pascarella et al. (1995), clearly suggest that male intercollegiate athletes in nonrevenue-producing sports derive as much cognitively out of college as do male nonathletes.

The only consistent pattern of relative cognitive disadvantages we found in our analyses accrued to male football and basketball players.

Compared to male nonathletes, male intercollegiate football and basketball players had significantly lower levels of writing skills, reading comprehension, and critical thinking in estimates based on an unweighted sample, and significantly lower levels of writing skills and critical thinking in estimates based on a weighted sample. Similarly, as compared to male intercollegiate athletes in nonrevenue-producing sports, football and basketball players had significantly lower levels of reading comprehension and critical thinking based on unweighted estimates and significantly lower levels of science reasoning, writing skills, and critical thinking based on weighted estimates. Moreover, the nonsignificant differences among adjusted group means demonstrated the same pattern, with football and basketball players as consistently the lowest, outlier group (see Table 4). In short, our findings suggest that male intercollegiate football and basketball players are not receiving the same cognitive benefits from an undergraduate education as are other men.

It is important to point out that the significant negative cognitive impacts of participation in intercollegiate football and basketball are modest in magnitude, averaging about 0.33 of a standard deviation relative to male nonathletes and male athletes in nonrevenue-producing sports. In 1977 Bowen (1977) developed a rule of thumb, suggesting that effect sizes of about 0.33 of a standard deviation should be considered "small." More recently, however, Gall, Borg, and Gall (1996) have argued that, though small, effect sizes of 0.33 of a standard deviation should be considered as substantively or practically important.

It is also worth pointing out that the significant negative cognitive impacts of participation in football and basketball appear to be somewhat larger in magnitude during the second and third years of college than in the first. Using the data reported by Pascarella et al. (1995), the average statistically significant cognitive disadvantage accruing to male football and basketball players was about 0.20 of a standard deviation. This compared to a corresponding disadvantage of 0.33 in the present analyses. Such a trend is consistent with Walberg's (Walberg, Strykowski, Rovai, & Hung, 1984; Walberg & Tsai, 1983) hypotheses that initial educational disadvantages become more pronounced over time. However, this needs to be interpreted with caution, because these findings are based on somewhat different samples.

Consistent with earlier analyses of the cognitive impacts of men's intercollegiate athletics (Pascarella et al., 1995), we found no evidence to suggest the presence of significant conditional effects for male athletic participation. Rather, it would appear that the negative cognitive impacts of male participation in intercollegiate football and basketball are similar in magnitude, irrespective of one's levels of precollege cognitive de-

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velopment and academic motivation, socioeconomic status, or ethnicity. In short, no particular type of male student in our sample appeared to receive greater cognitive penalties from participating in intercollegiate football and basketball than any other. Similarly, no evidence was uncovered to indicate that the negative cognitive impacts of participation in intercollegiate football or basketball differ in magnitude at NCAA Division I or non-Division I institutions, or at institutions differing in the academic or cognitive ability of their undergraduate student bodies. Thus, the findings do not appear to merely reflect an "elite" versus a "jock school" phenomenon or a "small-time" versus a "big-time" athletic program.

The results of this study generally support those of Astin (1993), but with a major extension or refinement. Astin found that participation in intercollegiate athletics was negatively associated with scores on the verbal portion of the Graduate Record Examination and the Law School Aptitude Test. The present findings suggest that any negative cognitive influence of participation in intercollegiate athletics may be largely a function of the distinct disadvantages that accrue to male football and basketball players.

Based on the Pascarella et al. (1995) study, we anticipated that any negative cognitive influence of athletic participation might be accounted for by differences in the experience of college by athletes and nonathletes. This hypothesis would have been supported had the dummy variables representing athletic participation become substantially smaller and nonsignificant when the college experience variables were added to the equation. Our findings, however, failed to support this hypothesis. In only one case did a significant negative total effect for athletic participation become nonsignificant when the college experience variables were added to the regression equation. The significant negative total effect of participation in intercollegiate football or basketball on end-of-third-year reading comprehension becomes nonsignificant in the direct effects equation. However, the reduction was from −1.548 to −1.352, hardly a dramatic decline. Moreover, in four instances the significant negative total effects of athletic participation actually became larger when the college experience variables were introduced into the equation (see Tables 2 and 3).

Such findings suggest that the negative cognitive impacts on men of participation in intercollegiate football and basketball are not explainable by differences between these athletes and other men in their experience of college (i.e., amount studied, credit hours completed, work responsibilities, place of residence, or patterns of course work taken). Rather, we may have to look elsewhere—perhaps to the sports themselves—to understand just why football and basketball players are not deriving the same cognitive benefits from college as other men.

One possibility is that competing in major revenue-producing sports simply absorbs so much physical and psychological energy that there is only a limited amount left to make the kinds of intense investments in one's academic experience that enhance cognitive growth. The psychic "investment" explanation has a corollary in the possibility that football and basketball require players to invest a significantly greater amount of time than do other intercollegiate sports (or nonparticipation in intercollegiate athletics). Time being a finite commodity, football and basketball players may simply have fewer available hours to devote to their course work or to other types of involvements known to be linked to cognitive growth. A related possibility is that participating in intercollegiate football and basketball tends to involve one in a subculture that does not always value academic or intellectual achievement (Sperber, 1990; Telander, 1996). Moreover, the norms of such a subculture, when combined with the time commitments of participation, might function to isolate football and basketball players from the kinds of interactions with diverse student peers and faculty that enrich the intellectual experience of college (Kuh, 1993, 1995; Terenzini, Pascarella & Blimling, 1996).

Of course, there is an alternative hypothesis for our findings that cannot be discounted. It may be that our operational measures of the college experience (see Table 1) do not adequately capture the actual experiential dimensions that account for the cognitive disadvantages that accrue to football and basketball players.

Limitations

The NSSL data have several limitations that should be kept in mind when interpreting the findings of this study. First, although the overall sample was multi-institutional and comprised a broad range of four-year institutions from around the country, the inclusion of only 18 institutions means that one cannot necessarily generalize the results to all four-year institutions in the United States. Similarly, although we attempted in the initial sampling design and subsequent sample weighting to make the sample as representative as possible at each institution, the time commitments required of each student participant undoubtedly led to some self-selection. The responses of the students who participated in the study might have differed from those of the students who were invited to participate but declined. Weighed against this, however, was the fact that we found no significant conditional effects based on precollege cognitive ability, precollege academic motivation, ethnicity, or socioeconomic status. Thus, if there was some bias in the sample on these characteristics, it appeared to have no appreciable influence on the study's major findings. Finally, it should be noted that time limitations in the data collection made it impossible to administer all the CAAP test modules at the pretest (fall 1992) and the second and third follow-ups. Consequently, different test modules were given in different follow-ups, and it is not clear how this may have influenced the pattern of our findings. For example, we did not observe a significant negative effect of athletic participation for women on end-of-second-year science reasoning or writing skills. What we cannot determine from our data, however, is whether or not we would have observed the same nonsignificant effects had science reasoning or writing skills been administered in the third year of the study.

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Exploring Underrepresentation

The Case of Faculty of Color in the Midwest

Introduction

On the brink of the twenty-first century, our nation continues to struggle with the challenge of becoming a multicultural society. Although our society takes pride in the opportunities for mobility offered to its citizens, inequities based on racial and ethnic differences continue to exist. This study focuses on continuing inequities for professors in higher education. Today, with race-based scholarships under scrutiny, affirmative action losing support, and efforts to achieve diversity and equity in higher education contested, there is an urgent need to reexamine the issues of successful recruitment, retention, and development of faculty of color in the academic workplace.

Myths about minorities in academia abound. Among those noted by Wilson (1987), Olivas (1988), Nakanishi (1993), and Smith, Wolf, and Busenberg (1996) are: the Asian American experience in academia is "exemplary" and devoid of any racial/ethnic bias; minority women are "prime hires"; because of high demand/low supply, minority PhDs are flooded with job offers; there are no qualified minorities; and minorities

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possess unexceptional credentials. Wilson (1987) laments: "Myths die hard, even in the face of incontrovertible data. . . . Americans . . . do not like to admit that some intractable problems resist solution because we do not want to solve them or, perhaps worse, because we hope they will go away" (p. 13).

Statistics detail dismal participation and completion rates for African Americans, Latinos, and Native Americans in the American educational system. Low representation rates for people of color among tenure-track and tenured faculty ranks follow this pattern. Even though the record appears far better for the Asian Pacific American population, they reported exclusion as a fact of their working lives in this study, a finding that echoes reports in other published work.

This article presents a comprehensive study of African American, Asian Pacific American, Native American, and Latino faculty in eight states that were members of the Midwestern Higher Education Commission (MHEC) from 1993 to 1995: Illinois, Kansas, Michigan, Ohio, Wisconsin, Nebraska, Missouri, and Minnesota. We present critical perspectives that emerge from our data with the hope of contributing to a comprehensive understanding of successful recruitment, retention, and development of faculty of color in higher education. These perspectives come from interviews with faculty of color themselves, from statistical data collected for our study, and from a comprehensive analysis of data presented in the literature. A thorough examination of these data reveals not only the continued underrepresentation of faculty of color in the nation's colleges and universities but, equally significantly if more subtly, the persistence—and the personal and professional effects—of a decidedly chilly work environment.

Challenges to the successful recruitment, retention, and development of faculty of color include significant barriers within academia itself that discourage people of color from becoming productive and satisfied members of the professoriate. Our findings and analysis show that the predominant barrier is a pervasive racial and ethnic bias that contributes to unwelcoming and unsupportive work environments for faculty of color.

However, it is important to note that ours is a study of successes. We interviewed faculty of color who currently have faculty positions. Despite the high probability of failure facing students of color who prepare for the professoriate, all faculty interviewed for this study, as well as faculty quoted in the literature, have earned tenure-track and tenured positions in higher education. Many are administrators. They have not left higher education. Positive workplace experiences strengthen the commitment of faculty of color to remain in academe. Their achievement is reason for pride; yet the fact is that this elite and successful group of scholars, even among those who are not only tenured but who also hold high-level, high-profile academic appointments, still experience continued exclusion and isolation. This sobering fact must check any premature optimism about the distance yet to travel toward equality in American higher education.

Faculty of Color in Midwestern Colleges and Universities

Why study faculty? We agree wholeheartedly with Green (1989) that "faculty are the core of the institution. . . . A diverse faculty is essential to a pluralistic campus. . . . Faculty create the curriculum [they also create and legitimize knowledge] and determine the quality of experience in every classroom [and in every department]" (p. 81). In academe's attempts to enhance diversity, it is imperative that the representation and well-being of faculty of color be strengthened.

Several recent books address issues for faculty of color and document the challenges they face (Gainen & Boice, 1993; Harvey & Valadez, 1994; Padilla & Chavez, 1995; Tack & Patitu, 1992). However, few studies have specifically examined the workplace environment for faculty of color in the Midwest, despite the region's growing population of people of color. Our study, the first to do so, was part of the Midwestern Higher Education Commission's two-year planning and research initiative to examine the status of faculty of color in Midwestern colleges and universities. A total of 487 campuses in eight states participated. The combination of qualitative and quantitative data used in our research approach allows us to present an elaborate perspective on the workplace environment for faculty of color. Like other studies, we document challenges that faculty of color face, but we also explore why faculty of color remain in academe.

Highlights from the Literature

Despite years of affirmative action policies, much of the recent literature examining the status of faculty of color in higher education shows a continued pattern of underrepresentation and racial/ethnic bias. For example, a 1997 report entitled "Race and Ethnicity in the American Professoriate 1995–1996" by Astin, Antonio, Cress, & Astin shows that faculty of color accounted for about 10% of the professoriate, inching up from 9% in 1989. Furthermore, nonwhites are concentrated in the two-year colleges or in nontenure-track positions. The study was based on a 1995–96 nationwide survey of 33,986 faculty respondents, of whom

8.7% (or 2,943) represented several racial/ethnic group categories: African American/Black, Native American, Asian American/Asian, Mexican American/Chicano, Puerto Rican American, and Other Latino. According to Astin et al. (1997), faculty of color stated that they continue to experience subtle discrimination in the work place, such as seeing their work devalued if it focuses on minority issues (p. A12). Furthermore, subtle discrimination and the review/promotion process produced the largest differences in stress levels between white faculty and faculty of color. Astin noted her surprise at the findings: "I was expecting the picture to look brighter. . . . The proportion of minority professors is so small that they're invisible in so many ways" (p. A13).

She also noted that, compared with white faculty, faculty of color, including Asian American faculty, are less satisfied with nearly every aspect of their jobs. Factors that received "less satisfied" responses from faculty of color included autonomy/independence, professional relations with faculty, overall job satisfaction, opportunity to develop new ideas (compared with all other respondents, Asian Americans were least satisfied on this factor), job security, and quality of students. Thus, the underrepresentation of faculty of color and indications of subtle discrimination in the academic workplace continue.

Some studies (Adams, 1988; Blackwell, 1988; Brown, 1988; Carter & Wilson, 1991; Schuster, 1990; Thomas, 1992) indicate that the problem of underrepresentation is one of supply and propose increasing the number of doctorate recipients of color. Delving beyond the supply problem, however, researchers have identified six additional barriers to the recruitment and retention of faculty of color:

1. Isolation and lack of mentoring. Faculty of color find themselves outside their departments' informal networks. Although merit and autonomy are touted as institutional values in the academy, a major contributor to success in the professoriate is association with senior colleagues. Without such affiliation, faculty of color are isolated and struggle through the socialization process alone. (Blackwell, 1989; Boice, 1993; Spann, 1990).

2. Occupational stress. Underrepresentation of men and women of color and universities' desires to have minority representation on committees combine to burden their relatively few faculty of color with formidable responsibilities. Faculty of color are in a Catch-22; they feel they cannot refuse to serve on committees, but heavy service loads mean less time for the research that leads to the rewards of tenure and promotion (Garza, 1993; Menges & Exum, 1983; Smith & Witt, 1993).

3. Devaluation of "minority" research. Faculty of color find that research on minority issues is not considered legitimate work, particularly if articles are published in "non-mainstream" journals. Corroborating the descriptions of our study respondents were those of other studies reporting that the research interests of faculty of color are denigrated, either because the research area is not "traditional" or because the faculty themselves are seen as inferior due to race or ethnicity (Garza, 1993; Granger, 1993; Milem & Astin, 1993; Mitchell, 1982; Nakanishi, 1993; Nettles, 1990; Padilla & Chavez, 1995; Reyes & Halcon, 1988; Sands, Parson, & Duane, 1992).

4. *The "token hire" misconception.* Faculty of color report that colleagues expect them to be less qualified or less likely to make significant contributions in research. Some have noted a pervasive attitude of complacency—the belief that hiring one person of color in a department is sufficient. Such an attitude contributes to the isolation—being "the one" in a department (Bronstein, 1993; Granger, 1993; Mitchell, 1982; Padilla & Chavez, 1995; Reyes & Halcon, 1988; Sands, Parson, & Duane, 1992). Kulis and Miller (1988) urge that tokenism "in its various manifestations should be identified and abolished, while the "concomitants of tokenism, such as committee overload, professional isolation, and marginality, should be monitored and redressed" (p. 32).

5. *Racial and ethnic bias in recruiting and hiring.* Our study indicates that the absence of aggressive hiring strategies may contribute more to the underrepresentation of faculty of color than do high departure rates. Ponterotto (1990) suggests:

> "Necessary qualifications" should be defined carefully. Does excellence in the field include being able to relate to, mentor, and be a role model for minority students, or would this just be a nice extra in a candidate? For example, which of the following two candidates is more qualified for the job of full professor: a generally good teacher with seventy-three articles published in academic journals, or a generally good teacher with thirty-nine articles published and an exemplary reputation for mentoring minority students and attracting them to the campus? In this example, an important question is what constitutes a "qualified" candidate. (p. 71)

6. *Racial and ethnic bias in tenure and promotion practices and policies.* Also corroborating the reports of our study respondents, much of the higher education literature documents the pervasive theme that the talents and contributions of many faculty of color are devalued or undervalued in the academy. This condition leads to charges of racial and ethnic bias in the tenure and promotion process.

Astin (1982) asserts that hiring and promotion criteria should be revised to credit a wider variety of accomplishments and types of service than are traditionally recognized. Similarly, Garza (1993) maintains that institutions "need to reassess what constitutes rigorous and legitimate scholarship, and its relationship to institutional barriers that may help maintain ethnic and racial social division" (p. 40). Johnsrud and Des Jarlais (1994) similarly recommend that departments be required to update and clarify tenure and promotion criteria; they also suggest that department chairs be trained to provide performance reviews to probationary faculty that explicitly address progress toward tenure.

Methodology and Data

Five fundamental questions guided our study: (a) To what extent are faculty of color underrepresented in Midwestern higher education institutions? (b) What factors contribute to underrepresentation? (c) Do Midwestern institutions of higher education provide adequate institutional support for faculty of color? (d) What can we learn from some exemplary programs about increasing minority representation? (e) What can we learn from faculty of color themselves that will contribute to effective strategies?

To address these study questions, we used both quantitative and qualitative research approaches. Quantitative data sources included:

1. The 1991 U.S. Equal Employment Opportunity Commission data on full-time faculty as reported by institutions.
2. The 1990 U.S. Department of Commerce, Bureau of the Census reports on general population characteristics.
3. The 1990 Census Public Use Micro Sample (PUMS), which includes industry and occupation for employed persons.
4. The 1991 National Research Council Survey of Doctorates.
5. National Center for Educational Statistics data, 1977–87 and 1990.
6. Our faculty development survey of colleges and universities in the study states.

We extracted data on faculty of color from the 1991 Equal Employment Opportunity Commission, population data from the federal census, and the 1990 Public Use Micro Sample (PUMS) to establish a restricted definition of "faculty of color" and to probe the question of underrepresentation. We also used the PUMS tapes for the United States and for specific Midwestern Higher Education Commission (MHEC) states to analyze national and regional trends and patterns of representation.

The U.S. sample constituted a 1% sample of all returns from the 1990 census. We took a 3% random sample of this U.S. sample base to compute representation ratios and to estimate an econometric model of the determinants of faculty representation and wages. We identified all persons over 24 and under 70 years of age who held master's or PhD degrees in the U.S. sample base, then also identified people in this subsample who were not enrolled in school, who reported their occupations as postsecondary teachers, who had earned income in 1989, and whose "industry" was listed as college or university. We used this subgroup to calculate predictions of faculty earnings and estimate determinants of faculty representation ratios. Finally, we combined 5% state-based samples to estimate representation ratios and to analyze higher education patterns in MHEC states.

Our faculty development survey helped identify recruitment and retention barriers and corrective programs and practices. We sent questionnaires to 713 nonprofit institutions of higher education in the eight Midwestern states. We sent the surveys to the president of each institution, asking him or her to forward it to the person at the institution responsible for faculty development. A total of 487 surveys were returned for a response rate of 68%. Thirty-six percent of the responding institutions were two-year colleges and 37% were four-year baccalaureate institutions. Eleven percent of the respondents were universities and 10% were professional schools. The remaining 6% were other classifications. Just over half were public institutions (51%). Almost two-thirds (65%) had undergraduate enrollments of under 2,500 students. Nine percent had undergraduate enrollments of over 10,000 students. We found that this response pattern was representative of the mix of institutions in the Midwest.

Our survey instrument included questions on the organization and funding of faculty development programs, specifically minority faculty development programs. We also asked the institutions to share their perceptions on four issues: (a) the effectiveness of faculty development activities, (b) priorities for minority faculty recruitment and retention, (c) faculty and administrator turnover rates, and (d) institutional difficulties in hiring and retaining minority faculty.

Qualitative data came from two sources:

1. Our individual and group interviews with 64 faculty of color.
2. Our review of documents on 26 "exemplary" programs promoting the development of future faculty of color for the professoriate.

We interviewed a purposive sample of faculty of color from Midwestern colleges and universities to elicit their perceptions and assessments of institutional practices associated with recruiting and retaining faculty of color. Fifty-five of these interviews were with individuals, while two focus groups included nine more faculty, yielding a total database of 64 faculty of color. They were working at institutions in seven MHEC states (Illinois, Kansas, Michigan, Minnesota, Missouri, Nebraska, Ohio). Wisconsin had not joined the commission at the time of the interviews.

We used an interview protocol developed by Turner in consultation with other researchers. The responses were tape-recorded, transcribed, and analyzed with the assistance of a qualitative computer software program, *Nonnumerical Unstructured Data: Indexing, Searching, and Theorizing* (NUD*IST). We coded emergent themes from each interview and named them according to categories generated primarily from the interview protocol. Interviews solicited participant views on their reasons for pursuing an academic career, the pathways that led them to their current position, their professional development experiences, their experiences as faculty members, their general experiences in the academic workplace, their future plans and expectations with regard to leaving academia, and their recommendations for improving the recruitment and retention of faculty of color.

We identified "exemplary" programs, which supported the goal of increasing minority faculty representation in academia, by querying institutional leaders and faculty on Midwestern campuses and by examining the literature. Of the 26 programs identified, 9 were general programs serving all regions of the country; the others were specific to certain institutions or states. Twenty-one targeted women and ethnic minorities, 3 African Americans, 1 Native Americans, and 1 Latinos. We examined brochures, evaluations, documents, and reports on each exemplary program and reviewed each program's key features and operations.

Analysis and Findings

1. Are Minorities Underrepresented?

The first question guiding our study was whether faculty of color were underrepresented in Midwestern higher education institutions. Alternative approaches can be used to estimate representation: measures of minorities relative to the general population, measures relative to the national availability of qualified persons, and measures relative to expected availability or to the appropriate civilian labor force (Cooper & Smith, 1990).

We calculated two indices of representation, one more conservative than the other. Our first indicator used institutional data compiled by the U.S. Equal Employment Opportunity Commission (EEOC) and compared the percentage of faculty from a specific racial group to that group's percentage in the general population. For each racial group in each Midwestern state we divided the faculty minority percentage by the percentage in the general population.[1] A 1.0 result would show a faculty that looked like the community. A result less than 1.0 would indicate underrepresentation. The data for this index came from the U.S. Equal Employment Opportunity Commission and the 1990 census comparing full-time faculty in the fall quarter to the general population.

For our second, more conservative measure, we used a broader definition of faculty—including part-time and full-time postsecondary educators employed in colleges and universities—but a narrower comparison population group: persons ages 24 to 70 holding PhDs or master's degrees. The comparison population might be termed the "qualified pool." We then compared the percentage of the qualified pool in each racial group who identified themselves as faculty members to the percentage of faculty in the qualified pool.[2] Again, a result less than 1.0 would indicate underrepresentation. The data for this index came from the 1990 Census Public Use Micro Sample (PUMS). The representation ratios are computed separately for the entire United States and for each member state of the Midwest Higher Education Commission. The representation ratios for the Midwestern states compare minority faculty to the state's minority population. The representation ratios for the entire United States compare minority faculty to the nation's minority population. Because the minority population shares in the United States are generally larger than they are in the Midwestern states, the effect of our method is to inflate the resulting ratios for the Midwestern states. Our measures will *understate* the degree of underrepresentation of minorities in the Midwest if the market for faculty is national rather than regional or statewide.

Figure 1 displays our first indicator of representation, comparing faculty percentages with minority percentages in the general population. It shows that representation, measured this way, varies by racial/ethnic group: African Americans were severely underrepresented (i.e., below the 1.0 ratio) in all eight MHEC states; Native Americans were underrepresented in seven of the eight, and Latinos in six. Asian Pacific Americans, according to this analysis, were not underrepresented.

Figure 2 reports a similar pattern. It compares the percentage of each racial group, ages 24 to 70, made up of faculty with master's and PhD degrees, to the faculty percentage of the "qualified pool" population or those in the same age range and with the same degrees. For both males and females the graph shows underrepresentation of African Americans, Native Americans, and Latinos, and over-representation of whites and Asian Pacific Americans.

Thus general population statistics and faculty occupational statistics alike indicate strongly that African Americans, Native Americans, and

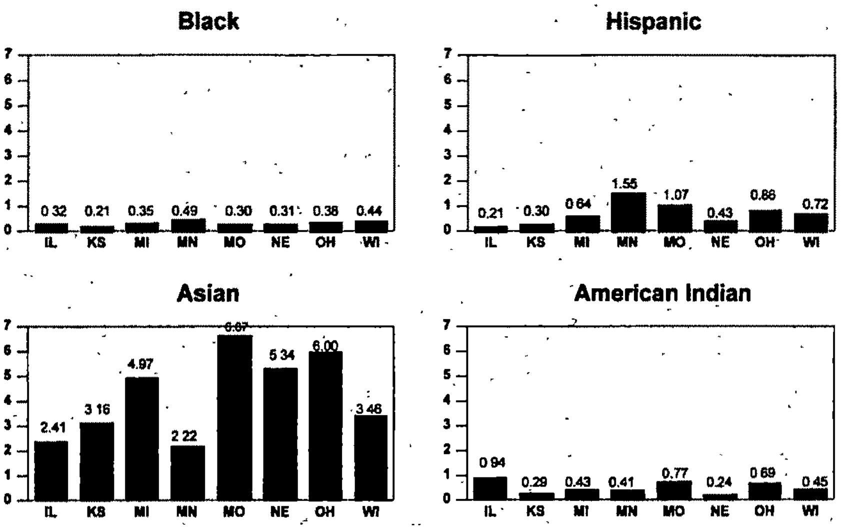

FIG. 1. Faculty Representation Ratios in MHEC States

SOURCE: Table D.1 Faculty data include full-time faculty only and are compiled by the Equal Employment Opportunity Commission from 1991 EEO-6 Higher Education Staff Information, Table III. Population data include people of all ages and come from the U.S. Department of Commerce, Bureau of the Census, General Population Characteristics: Sex, Race, and Hispanic Origin, 1990.

NOTE: The faculty representation ratio is the percentage of total faculty accounted for by each race (from EEOC file) divided by the percentage of the population accounted for by each race (from the 1990 Census).

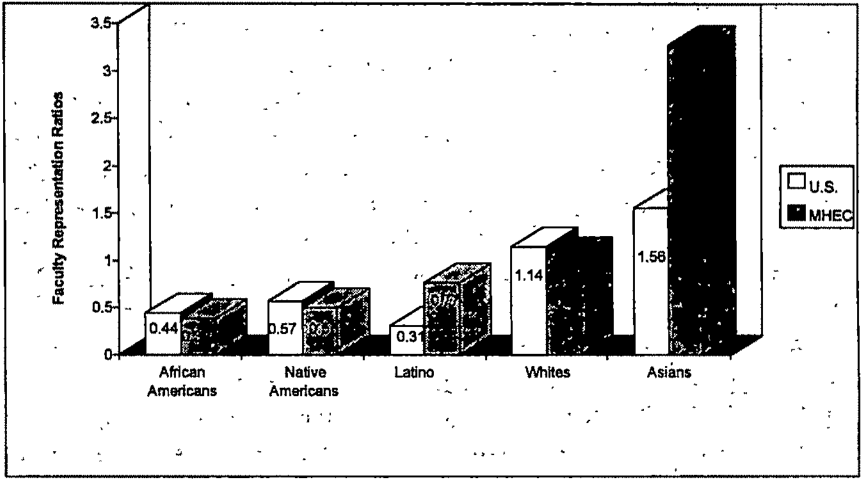

FIG. 2. Faculty Representation Ratios: U.S. vs. MHEC States

SOURCE: Table D.4 (PUMS, 1990).
NOTE: Faculty representation ratio is the percentage of faculty among MAs and PhDs, ages 24–70, within each race divided by the percentage of total faculty among MAs and PhDs, ages 24–70, within the U.S. and Midwest.

Latinos are underrepresented on the faculties of Midwestern universities and colleges. These findings lead directly to the second question guiding our study.

2. What Factors Contribute to Underrepresentation?

Three factors help to explain the underrepresentation of people of color on faculties in higher education: (a) the pipeline problem, (b) the market-forces problem, and (c) the "chilly-climate" problem.

The pipeline problem. The pipeline explanation argues that there are too few qualified candidates of color for faculty openings. Too many minority students drop out of the pipeline to academic careers at various stages. Further, this dropping off tendency—measured by the number and share of degree recipients—has reportedly increased over the years.

Figure 3 portrays the pipeline dropout for 1990. Based on data from the National Center for Educational Statistics (1977–1987, 1990), it shows not only the proportion of African American, Latino, and Native American students at every step of the academic pipeline but the dwindling of those proportions from one step to the next. The percentage of degrees earned by African Americans fell sharply from the bachelor's through the PhD level. Latinos faced declining shares of master's degrees and doctorates. The low percentage of academic degrees earned by Native Americans became even smaller at higher degree levels. By contrast, Asian Pacific Americans were represented at higher proportions than in the general population, and their share of degrees awarded increased, not decreased, from each step to the next.

Other studies corroborate these differential patterns for racial/ethnic groups (e.g., Bowen & Rudenstine, 1992). An examination of historical trends from 1977 to 1990 showed that the *number* of bachelor degree recipients increased for Asians, Latinos, Native Americans, and African Americans; the *share* increased also for all groups except African Americans. For African Americans the share of master's and doctoral degrees declined. Following the logic of Bowen and Rudenstine, then, the point along the pipeline where there appears to be a leakage is at the master's and doctoral stage, especially for African Americans. There seem to be increasing numbers of African Americans entering the higher education pipeline; there are fewer who are leaving it with advanced degrees.

Market forces problem. Would the pipeline problem be solved with an increased supply of minority PhDs? That depends partly on whether faculty salaries entice minorities to enter the academic market rather than the private sector jobs—and on where the most attractive faculty salaries exist.

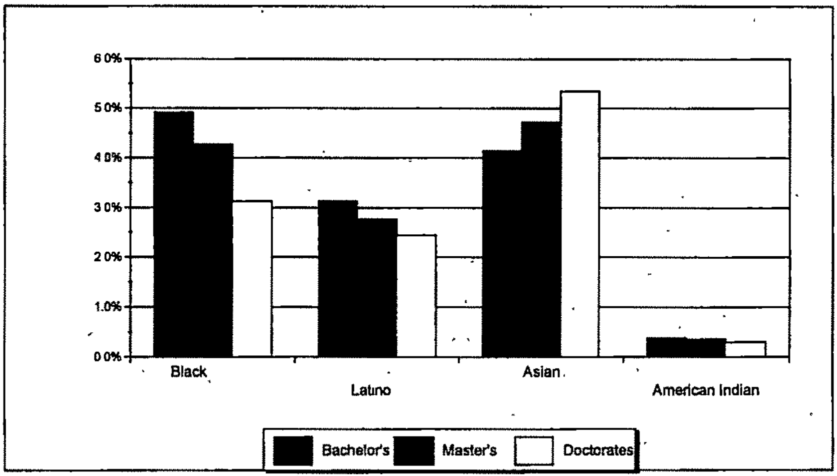

FIG. 3. Pipeline from Bachelor's to Doctorate: All Fields, U.S. Citizens, 1990

SOURCE: U.S. Department of Education, National Center for Education Statistics, Digest of Education Statistics 1991, Tables 245, 247, and 249 (for 1977–1987 data) and "Race/Ethnicity Trends in Degrees Conferred by Institutions of Higher Education: 1980–81 through 1989–90," Tables 3–7 (for 1989 and 1990 data) (based on IPEDS/HEGIS surveys of degrees conferred).

Using the 1990 PUMS data, we calculated faculty earnings for each region of the United States. We used the National Research Council Survey of Doctorate Recipients from 1991 to identify the share of doctorates awarded by each state in our study, the share of employed PhDs produced by the study states, the share produced in Midwestern states who work in the Midwest, and the share produced in study states who work outside of the region.

Table 1 shows 1990 wage and salary income data for master's and PhD degree holders ages 24 to 70. The average private-sector wage in the United States was $34,556, whereas the faculty average was $26,596. African American faculty wages were lower in the Midwest, specifically in the study states, than they were in the South, West, or East. Latino faculty also earned slightly less in the study states than in the rest of the nation. Asian faculty salaries were the highest of all ethnic groups in the Midwest and in the nation as a whole.

It surprised us that the study states were the largest exporters of PhDs and, to an even greater extent, of minority PhDs. Table 2 shows that the eight study states collectively conferred almost 23% of all American PhDs. However, the vast majority of these doctoral recipients ultimately pursued careers (all careers, including academic ones) in other regions of the nation. Almost two-thirds (63.5%) of doctoral graduates from Midwestern institutions were "exported" to other places, with minority

TABLE 1

Annual Wage and Salary Income for Master's and PhD Population (24-70), 1990

	U.S.	MHEC States	N. East Region	North Central	West Region	South Region
Percent Faculty	5.88%	6.53%	5.26%	6.48%	5.34%	6.58%
White	6.15%	6.79%	5.58%	6.66%	5.60%	6.88%
Black	4.23%	3.50%	3.09%	3.79%	4.51%	4.71%
Indian	5.10%	—	—	—	—	—
Asian	4.87%	4.73%	3.46%	5.77%	4.55%	7.44%
Hispanic	4.08%	8.61%	3.20%	11.01%	4.11%	2.67%
Private Sector Wage	$34,556	$33,993	$37,926	$33,649	$36,201	$30,563
White	$35,028	$34,444	$38,107	$34,115	$36,753	$31,196
Black	$28,807	$27,446	$33,507	$27,168	$31,711	$26,270
Indian	$35,534	—	—	—	—	—
Asian	$35,275	$33,852	$40,760	$33,238	$34,053	$32,104
Hispanic	$32,422	$29,587	$33,601	$30,336	$35,492	$26,510
Public Sector Wage	$30,718	$30,692	$31,549	$30,520	$32,049	$28,699
White	$31,274	$31,113	$32,026	$30,985	$32,804	$29,196
Black	$27,889	$27,370	$28,820	$27,227	$29,771	$26,941
Indian	$31,546	—	—	—	—	—
Asian	$27,349	$26,797	$28,752	$25,935	$27,559	$25,594
Hispanic	$28,495	$28,196	$28,381	$28,100	$30,722	$24,640
Faculty Wage	$26,596	$26,219	$27,499	$25,991	$26,874	$25,939
White	$26,732	$26,307	$27,320	$26,111	$27,167	$26,193
Black	$23,998	$23,347	$25,654	$23,059	$24,298	$23,541
Indian	$26,542	—	—	—	—	—
Asian	$27,829	$27,920	$31,415	$26,954	$25,913	$28,993
Hispanic	$25,966	$25,623	$26,907	$26,301	$26,599	$23,970

SOURCE: 1% Public Use Micro Sample, 1990.

doctorates exported at a higher rate than white doctorates—66.7% versus 63.1%, respectively.

In academia this export differential was even higher. Of Midwest-produced white PhDs employed in academia in 1991, 38.8% worked in the Midwest. For Midwest-produced minority PhDs employed in academia, the percentage employed in Midwest states ranged from 32.9% for African Americans to 36.4% for Native Americans.

The "chilly climate." Supply in the pipeline and demand in the market are external factors affecting the number of minority faculty in higher education. An internal institutional factor is the campus "climate" for professionals of color. Defining "chilly climate" within an academic setting, Spann (1990) found that all 78 faculty participating in her study (regardless of ethnic background, gender, rank, discipline, institutional affiliation, or success in achieving tenure) identified a supportive environment as the single most important factor in determining their success

TABLE 2
Share of Employed PhDs Produced by MHEC States

	Total	White	Black	Asian	Native American	Hispanic
Share Produced by MHEC States						
All PhDs	22.79%	22.93%	22.51%	23.48%	19.45%	14.01%
Science & engineering	22.50%	22.51%	21.47%	23.69%	20.48%	15.57%
PhDs employed in academia	23.63%	23.81%	22.48%	24.61%	26.88%	13.52%
Science & engineering	23.43%	23.44%	22.05%	24.94%	28.83%	15.58%
Share of MHEC Employed PhDs Produced by MHEC States						
All PhDs	48.50%	48.57%	53.45%	46.73%	60.38%	41.60%
Science & engineering	48.15%	48.02%	53.53%	47.59%	65.75%	44.00%
PhDs employed in academia	46.25%	46.34%	49.32%	45.12%	66.20%	35.02%
Science & engineering	45.64%	45.41%	48.67%	46.88%	81.58%	38.22%
Share of MHEC Produced PhDs Who Work In MHEC States						
All PhDs	36.47%	36.94%	36.77%	32.23%	37.65%	33.43%
Science & engineering	36.14%	36.57%	38.47%	32.45%	31.37%	33.25%
PhDs employed in academia	38.26%	38.76%	32.90%	35.50%	36.43%	33.46%
Science & engineering	37.88%	38.34%	32.91%	36.05%	27.43%	33.98%
Share of MHEC Produced PhDs Employed Outside of MHEC States						
All PhDs	63.53%	63.06%	63.23%	67.77%	62.35%	66.57%
Science & engineering	63.83%	63.43%	61.53%	67.55%	68.63%	66.75%
PhDs employed in academia	61.74%	61.24%	67.10%	64.50%	63.57%	66.54%
Science & engineering	62.12%	61.66%	67.09%	63.95%	72.57%	66.02%

SOURCE: Authors' computations from Appendix F, Midwestern Higher Education Commission Minority Faculty Development Project Final Report derived from National Research Council, Survey of Doctorate Recipients 1991, unpublished tabulations.

in academe. Attempting to make concrete the abstract notion of a chilly climate (fraught with paper-trail-free discrimination), study panelists at The University of Wisconsin System articulated the need for climate improvement:

> Panelists defined climate as the quality of respect and support accorded to women and minorities on individual campuses and in individual departments. They believed that climates were created by institutions and could be measured in specific ways . . . by the number of women and minority faculty members at junior and senior levels . . . by the social distance between majority and minority group faculty and administrators . . . by the equitability of work assignments.

> Panelists agreed that the most serious and pervasive environmental problems were subtle ethnic and gender biases that "chill the air" and act as critical influences in teaching, research, and service evaluations. . . . Dealing with bias is like peeling an onion. We've dealt with the gross outer layers; now we are trying to peel back a much more complex and difficult layer. Panelists agreed that, more often than not, it was subtle bias, passing as objective decision-making, that had to be uncovered and addressed. (Spann, 1990, p. 1)

The 64 faculty participating in our interviews included 11 Asians (7 male, 4 female), 28 African Americans (13 male, 15 female), 11 Native Americans (7 male, 4 female), and 14 Latinos (6 male, 8 female). Most of the respondents (44) held tenured positions; some also held high-level administrative positions in their departments/colleges, and senior-level positions in university administration. Their average age was 46. Twelve professors were in the biological and physical sciences. Others were in the social sciences, humanities, and education.

To what extent does climate encourage or discourage the recruitment and retention of faculty of color? A few respondents, 5% of the total, stated that they had not encountered racial and ethnic discrimination as they performed their faculty duties, but most acknowledged continuing racial and ethnic biases in their colleges and universities.

Though most faculty, over 95%, said they plan to stay in academe, they repeatedly mentioned the handicaps of isolation, lack of information about tenure and promotion, unsupportive work environments, gender bias, language barriers, lack of mentoring, and lack of support from superiors. They identified racial and ethnic bias as the most troubling challenge they faced in the academic workplace. Respondents acknowledged that all persons, regardless of race or gender, must struggle as they pursue a successful academic career but felt that, as faculty of color, they were burdened with additional challenges unknown to white colleagues. Whether already tenured or on a tenure track, they pointed to covert and overt forms of racial/ethnic bias in the workplace environment.

Promotion and tenure processes are especially problematic for faculty of color. Over half of the respondents reported having been told they did not fit the "profile" of someone to be promoted or having been bypassed in the process and advised to try for promotion at another institution.

For example, an Asian American woman administrator with tenure in a science department commented: "First, there were no women's names floating around. But here I was a woman and an Asian American and I felt that if I were a white male, my name would have been out there." An African American tenured faculty member who was an administrator in his college (humanities) revealed the pain of the slight:

> That whole year I had more publications, more presentations, and community work than any of the faculty that I supervise. . . . We found out who was promoted through the student newspaper, and I looked and I wasn't promoted. In the student newspaper of all things. No one had the decency to call.

Adding to this burden of being overlooked in promotion is the further issue of being expected to work harder than whites. These faculty of color felt themselves constantly scrutinized and equated this with "being in the spotlight." Their performance, they believed, had to surpass that of whites in comparable situations. As a male Native American in the social sciences commented, "Rightly or wrongly, many of my nonminority colleagues are never 100% sure that a minority person is here because they are good at what they do, or because of affirmative action." One female Latino faculty member in the social sciences said she would like to spend more time in research, but the institution expected "too much in terms of teaching." She added that she was expected to represent her whole ethnic group—a burden that white faculty members are free from.

Being very conspicuous adds to the difficulties our interviewees described. It also created great discomfort for minority faculty because they wanted to be recognized first for their academic credentials but felt diminished in their professional capacities because the first thing people noticed was their color. An Asian American tenured woman observed:

> I'm the department chair in the [science] department and I meet with a lot of people who don't know me—you know, prospective students and their parents. And I know that their first reaction to me is that I'm an Asian American woman, not that I'm a scientist or that I'm competent.

Another Asian American woman with tenure in her social sciences department remembered her introduction to the faculty:

> When I first came here, I remember that I was being introduced at the college faculty meeting the first day and my chair introduced me and didn't say anything about my qualifications or my background or my research interests. She said, "She's come in as chair of the [minority affairs committee]." Now that's an administrative position. I'm a faculty member. . . . The first years were tough and I would not let myself feel these experiences, but now in retrospect I can see that I went through an extreme amount of pressure.

An untenured African American woman in the humanities commented:

> It's like you get this look and all of a sudden you think to yourself, "That's right, I'm black. That's right, I'm a person of color." And so, they're not seeing me the way I see myself. They see that [color] first and then get their little shock.

A male Native American professor with tenure in the humanities agreed: "Mainstream students look at minority professors in a different light. . . . Not looking like a mainstream instructor naturally tends to work against you."

Webster's New World Dictionary (Guralnik, 1970) defines tokenism as a "show of accommodation to a demand, principle, etc., by small, often merely formal concessions to it" (p. 1495). Study participants did not want to be seen as "merely formal concessions" who had been hired through a loophole of lower standards. A male Asian American professor in the social sciences reported:

> Whenever [my university] tenures a person of color, they like to highlight the fact that this is a person of color who's been tenured or hired just to say, "Here, we're making progress." [When I was tenured] a press release went out that I thought highlighted my being [Asian] much more than was at all relevant. . . . I didn't like being displayed in that way.

A Native American social scientist without tenure had noticed the same phenomenon in her university: "They trot me out for the minority students and then they trot me back in. It's the same notion, they trot me out when they need attention . . . and then they trot me back in when they no longer need me."

These individuals are also expected to handle minority affairs on top of their traditional faculty roles. One Latina commented, "There is a lot of service. A little bit of time here and there, and it all adds up. It is hard to say 'no,' especially on minority issues, when there are so few people." A male African American explained: "It is frustrating, too, because anything that has to do with diversity, people dump it on my lap . . . and that's just too much work for one person. . . . Diversity should be everybody's job." Being the only minority faculty, or one of a very few, sends the wrong message in institutions where the number of students of color is on the rise. A male Latino faculty member said, "The faculty numbers ought to increase because of . . . channeling students through them as mentees. . . . We [minority faculty numbers] have not increased proportionately with the student increase."

From these comments, it appears that several issues of racial/ethnic bias contribute to a "chilly climate" problem: being denied or overlooked for the tenure and promotion process, being held to standards higher than those for white faculty, having color be more important than credentials, being a "token" faculty member, being expected to handle minority affairs, and, overall, needing more faculty of color on staff.

Issues of special concern to specific subgroups also surfaced. Native

Americans consistently spoke about concerns over the loss of identity: "The role of the university is not to make you comfortable as an Indian; the role is to strip the Indian away from you," said one. Asian faculty members expressed concern about the "glass ceiling" through which they could not pass. They also reported a common misperception about their ability to adequately speak or fully comprehend English. "People ask me why do I speak English so well? . . . They've already superimposed on me that I don't belong here," said one. Finally, Asians felt pressure to absorb discrimination in silence. "When minority people are more vocal," said one Asian, "then there are [fewer opportunities.] So over the years I've kept myself blind and didn't scream about it, and so things have gone on."

Latino faculty talked about cultural isolation and overwork. One Latina related:

> This is something that has been a struggle since I came to this country from Puerto Rico. . . . There was a lot of prejudice. . . . People at first . . . started laughing at your accent. . . . It's just the stereotypes that have always been in the USA. . . . "None of you work," or "All of you are on welfare."

The Latinos we interviewed also sensed the expectation that they provide extra service on campus. "This year service seems to be eating away my time," said one individual.

African Americans most frequently mentioned concerns about being both hypervisible and invisible, a set of paired concerns. As Sutherland (1990) observed: "As in other predominantly white organizational settings, composed of few people of color, the conspicuousness of skin color makes Blacks invisible on occasions, and highly visible on others" (p. 18). They are hypervisible because of their color and their advocacy for diversity, yet invisible, because they do not fit the campus "norm." While one individual had "gotten tired of going to faculty meetings and being the only African American there," another spoke of invisibility:

> When I express my frustrations and talk about leaving for another position, people look at me with a puzzled look and say, "Well, I thought you were happy. We didn't know you felt like that." So it's almost as if they've been looking at me as an honorary white person, or honorary European, if you will. And all the while I thought I was expressing me as a unique African American individual.

A "chilly climate" for these faculty contributes to their dissatisfaction and underrepresentation on campuses. From the interviews we also learned that, while quantitative data show high representation in academia for Asian faculty, Asian American faculty experienced negative treatment due to stereotyping. Along with quantitative data that reveal a concentration of Asian faculty in science and engineering and underrepresentation in administrative ranks, such attitudes create a difficult work environment for this group as well as for other racial/ethnic groups. These findings support the concerns stated by Nakanishi (1993), who pointed out that the image of Asian Pacific Americans as "successful" hides their underrepresentation in college faculties and key administrative positions. Thus, it is important to include the Asian American experience in our discussion. We are naive if we believe that numerical representation alone prevents racial and ethnic discrimination.

3. Is There Adequate Institutional Support?

The third question we explored was, to what extent do institutions support the professional development of faculty of color in higher education? Our faculty development survey yielded completed returns from 487 higher education institutions in the eight study states. The survey identified not only obstacles to recruitment but also organized support for faculty of color. In addition, literature and networking contacts identified exemplary programs of minority faculty recruitment and retention, and the interviews elicited further suggestions for strategies of support.

We learned from the survey that while 77% of the institutional respondents rated recruiting and retaining faculty of color as "high" or "very high" priorities, most offered little structured support for attaining these institutional goals. Officials at institutions in our survey named three major obstacles to recruitment of faculty of color: lack of qualified candidates, generally low representation of minorities on campus, and institutional salary competition.

As reflected in Figure 4, the most frequently cited obstacle was a lack of qualified candidates in all fields of study: arts and humanities, 58%; science, engineering, and technology, 59%; social sciences, 49%; and professional, 48%. The second most frequently reported obstacle to successful recruitment of faculty of color was the generally low representation of minorities among faculty, staff, and students. Social sciences administrators identified this factor as the most commonly reported obstacle to recruitment. Many respondents also cited institutional salary competition. This is the most commonly reported barrier to recruitment of faculty in professional schools.

Although 77% of the participating institutions rated recruiting and retaining faculty of color as either a high (38%) or very high priority (39%), only 6% had offices designated for the professional development of faculty of color—a disheartening disconnection between stated institutional priorities and actual institutional efforts. Furthermore, only 9% funded mentoring programs. Revealingly, a mere 20% rated their sup-

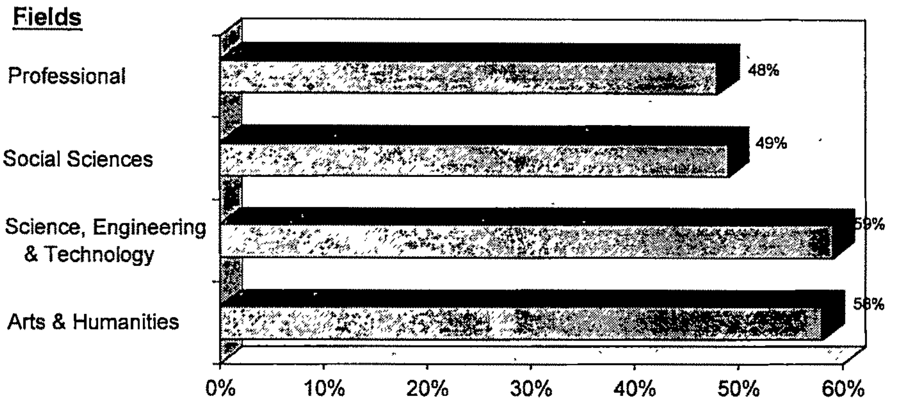

FIG. 4. Faculty of Color Recruitment Barriers: Perception that There Are Insufficient Numbers of Qualified Candidates

SOURCE: Appendix C. Derived from MHEC Faculty Development Survey, 1990, pp. 18–21 (Q29FC1, Q31FC1, and Q32FC1).

port of faculty participation in achieving diversity as "excellent." Less than 1% of the responding institutions allocated funds for special support of faculty of color.

We term the aforementioned results as those from our "faculty development survey." These results should not be misinterpreted as coming from a survey of faculty. Rather, the survey reflects the responses of administrators about faculty development programs at their institutions. As such, one can interpret them as being indicators of the opinions held by these administrators.

4. What Can Be Learned from Some Exemplary Programs About Increasing Minority Representation?

According to the survey, 10% of the administrators responding to our survey rated their institutions as making "exemplary" efforts to recruit faculty of color, and 5% made "exemplary" retention efforts. These programs ranged from graduate fellowships under the auspices of professional associations (e.g., graduate fellowships for African American, Latino, and Native American students of political science), to consortia arrangements and specific institutional initiatives. At Carleton College in Northfield, Minnesota, a Minority Scholars Program provides research funds to encourage minority students considering college teaching, and 33 students have participated in the project. At Ohio University in Athens, Ohio, departments receive financial incentives to recruit

African American faculty, administrators, and graduate students. When the program started in 1988, the number of African American tenure-line faculty more than doubled in its first two months. And the University of Missouri-Columbia has a Faculty Affirmative Action Fund to reinforce appointments for faculty of color. Such efforts illustrate campus-based and consortium efforts to fund, recruit, and retain faculty of color.

Pavel, Swisher, and Ward (1994) define *exemplary* as an "example for others. It may not be one of a kind or unique but [it is] a model which sets the standards for others" (p. 52). In their view, colleges and universities demonstrating commitment and achievement in addressing the needs of students, staff, and faculty of color can be labeled "exemplary." Our research found a number of exemplary programs in institutions of higher education, some funded by philanthropic foundations, to address the underrepresentation of faculty of color. We examined several such efforts, interviewing participants in one "grow your own" initiative and reviewing the documents, brochures, evaluations, proposals, and reports of others. However, more evaluation and analysis are needed to determine which programs work and why.

Most exemplary programs have three constraints: (a) many are fully or partially funded on "soft monies"; (b) due in part to inadequate funding, little or no formative or summative evaluations are conducted of cost and effectiveness; and (c) such programs are, in the main, not systemic but isolated attempts by a department or a special program within the college.

Most of the programs we examined try to get more students into the higher education career pipeline, even though they differ in composition and emphasis. The various emphases can be divided into three categories: fellowships, special hiring programs or contracts, and mentoring and networking opportunities. We will briefly describe one example from each category. We do not judge the quality of the programs, but present them as examples—not necessarily better or worse—than other such programs.

Even among the "successful" programs benefits may be short-term at best. There is no indication that states or even participating universities will pick up the financial burdens once foundation resources are depleted. The states may look to the several cases now before the U.S. Supreme Court and the Courts of Appeal for guidance on the constitutionality of race-based scholarships, and they may conclude that initiatives like those proposed by pipeline programs will invite immediate challenge by white graduate students.

Fellowship programs. These programs try to enlarge the pool of minority doctoral candidates and PhD recipients. The Compact for Faculty

Diversity, launched in June 1994, is a multiregion effort by three regional boards: New England Board of Higher Education, the Southern Regional Education Board, and the Western Interstate Commission for Higher Education. The compact's aim is to provide financial and academic support for approximately two hundred minority doctoral students per year and thus increase the number of African-American, Native American, Asian, and Hispanic faculty. It defines specifications for a successful program that should be carried out at the state, university, department, and compact levels:

> Since the causes of the problem are so complex, our solution to it must necessarily be system wide. Isolated efforts, while helpful and well intentioned, are unlikely to change the institutional dynamics that undermine the efforts of many talented, capable minority students. Only comprehensive plans that encompass all aspects of graduate study—funding, recruitment, instruction, training, advising, and job searching—are likely to produce the number of minority faculty needed. (The Compact for Faculty Diversity, 1994, p. 32)

An e-mail communication from one of the Compact directors noted that as of September 29, 1997, 29 states, 51 institutions of higher education, and 216 students have participated in this program. Twenty students have completed the PhD; at least 3 are in tenure-track faculty positions.

Hiring programs. Programs of this type focus on policies and resources that promote the recruitment and retention of faculty of color. Various institutions have created funding pools or special contracts with faculty of color which offer career development and research opportunities as recruiting incentives. One "grow your own" minority faculty development program at a major Midwestern research university identifies and recruits potential faculty of color, sometimes from outside of academe. It offers these individuals a contract requiring individuals to complete their doctorates while teaching two sections of the same course, thus minimizing course preparation responsibilities. Each participant receives doctoral tuition, an office, travel funds, equipment, and fringe benefits on the basis of 0.75 FTE faculty member (minimum salary of approximately $21,000). Their positions are guaranteed to convert to tenure track, with a salary increase to 1.00 FTE and an option to negotiate the salary level. There are no strings attached to the number of years the individual must stay in the college's employ. As of May 1994 it had exceeded its minimum goal of three minority faculty hires converted to tenure track, and the program has expanded to other colleges at the university.

We interviewed several program participants. Most praised the program and attributed much of its success to the dean's commitment, even while they acknowledged challenges they encountered. An untenured African American woman in the humanities commented: "The [program] really is something I was looking for. I was teaching high school for the past ten years and I was looking for a program where I could teach and work toward a doctoral degree simultaneously."

An untenured African American male teaching social sciences observed:

> The [minority faculty development program] came about at a good time for me because I was working . . . and considering a career change. . . . It's been five years since I've started here, teaching as well as working toward the doctorate, and I am happy to say that I'm honing in now on the first phase of the dissertation.

Another untenured African American woman teaching social sciences had been recruited from the public schools to teach methods three quarters time and supervise student teachers the remaining quarter time. She had mixed feelings:

> I took a tremendous cut in salary. . . . In faculty meetings I still get a sense that it's still the back door, that it's not the real process. . . . I wonder when I go to those meetings if my fellow colleagues look at me in terms of their equals or as just another project. . . . At the same time the dean and the department chair say "You have full status." But it's not.

While such "grow your own" efforts deserve praise and support, they need to build in continuous feedback from participants to allow for adjustments as unintended and unpredictable challenges surface. Another participant commented: "There was not someone to show me the ropes, and I'm still puzzled and that's the kind of situation I've been in all year."

Mentoring and network programs. The primary activities of this type of program involve mentoring and networking opportunities. Several fellowship programs also include mentoring and networking but differ from this type of program by focusing primarily on providing financial resources for students of color to obtain doctoral degrees.

The Midwest Consortium for Latino Research (MCLR) is a regional and multidisciplinary consortium housed at Michigan State University. MCLR was originally conceived in 1986 as the result of discussions by scholars about the lack of research and training opportunities for Latino researchers, faculty, and students in Midwestern colleges and universities. MCLR's mission is to provide leadership for the advancement of Latino and Latina scholars in Midwestern institutions and research on Latinos and Latinas in the Midwest. Nine Midwestern colleges and universities are MCLR members: De Paul University, University of Illinois-

Chicago, Indiana University-Bloomington, The University of Iowa, The University of Michigan-Ann Arbor, Michigan State University, University of Nebraska-Lincoln, University of Wisconsin-Madison, and Wayne State University. With membership dues and foundation grants, the consortium has undertaken several initiatives, among them:

1. MCLR Listserv. The first U.S Latino electronic network, this list provides a valuable source of information and scholarly exchange at the national level. Since 1995 the news network has reached international audiences.
2. Annual roundtables/conferences focusing on faculty development issues. For example, the 1994 Scholars Roundtable held at Indiana University involved 54 Latino scholars from eight Midwest states. The theme for the meeting was "Partnerships for a Midwest Latino Academic Leadership Agenda."
3. MCLR is also establishing a home page to highlight current and proposed MCLR activities. One section will highlight member institutions and projects on behalf of Latinos in the Midwest.
4. Other ongoing projects include the development of a Latino Faculty Survey to assess academic environments, the development of a Latino resource directory and database, and the development of an MCLR reprint series highlighting scholarly articles reporting research on Latinos in the Midwest.

5. What Can We Learn from Faculty of Color Themselves that Will Contribute to Effective Strategies?

Despite concerns about a chilly climate, most of our interviewees plan to stay in academia. Their reasons for staying include satisfaction with teaching, supportive administrative leadership, a sense of accomplishment, mentor relationships, collegiality, and interaction with other faculty of color. Thus, the picture is not entirely gloomy. In articulating positive workplace experiences, responses showed little variation by racial and ethnic group. It may be that the factors in successful retention are more universal than those of dissatisfaction.

A healthy, supportive, rewarding environment is good for everyone. "I always saw myself as a professor, or as a teacher rather, of students of different backgrounds, but I wanted to work in a city that had a significant Latino experience," a male Latino social scientist with tenure commented; ". . . My job was to empower students rather than to radicalize them. If they knew how to think critically, they could decide to be as radical as they wanted to be." A female African American teacher in the humanities observed: "I believe in helping those who can't help themselves.

I teach predominantly white students. I may be the only exposure they'll have to people of color. It's what I do—what I love to do."

Faculty of color who felt that they were achieving professionally expressed a desire to stay. An African American with tenure in his humanities specialty reflected: "I have had a few things published. . . . I've won a Fulbright Fellowship. . . . A few years ago I got the award for the Outstanding Teacher at the college." A Native American social scientist who had received her tenure explained: "We initiated an endowment to establish an endowed chair for American Indian education and we managed after years of advocacy to get well over a million dollars for that chair. So the chair was finally established and [name] was recruited into that position. It will be forevermore."

Others identified supportive administrators, mentor relationships, and collegiality as sources of satisfaction. A female African American social scientist, untenured, affirmed:

> The provost has been really supportive and helpful. Actually, he sought me out. . . . I think we have a healthy respect for one another, we don't always agree. . . . There are about five teaching faculty who are African American. They've been very supportive. The other African American people on campus are terrific. They're wonderful to work with. They are very supportive of one another.

A tenured social scientist, a male Latino, observed that his experience as a faculty member "was very positive. Very, very positive, because I had a lot of support from the dean" and from two nationally known and influential senior professors. An untenured male Native American social scientist reflected: "I have a number of professors out there that I consider mentors. I still can call up the associate dean, and I'm on a first name basis with him. And there's other professors out there that I call and talk to—some on a regular basis." An Asian American tenured science professor quickly identified as his mentor a "young and bright" professor at another university who had just come from an elite private research university when this student began his graduate work: "[He] was just getting started into the new graduate school, and he was the most motivating force in my professional life. So it is very important to have a very good mentor. . . . Whatever support I needed—the administration has helped, no question about it."

An Asian American woman who was a tenured professor in the social sciences recalled that her first department head

> was a person of color. And I must admit, it was nice to see that. Although we disagreed on a number of things over the years, we're still very good friends. . . . My second department head was an Hispanic woman—she's no

> longer here because she's the president at another college now. Her style was a very inclusive style. She tended to pull people into projects, planning, or whatever was going on.

It is important to remember that these respondents who expressed a commitment to staying in academe are the same people who pointed out problems. Just as their critical statements identified problems they face, these positive experiences define a repertoire of behaviors that create a welcoming climate for faculty of color.

Our interviews with faculty suggested several additional strategies that institutions might use to enhance the success of faculty of color. Several faculty interviewees recommended developing a more positive professional environment and targeting faculty development initiatives including networks for minority scholars, mentoring by senior faculty, and support for research and publication. A positive and intellectually vibrant work environment can compensate for even severe obstacles.

Networking with colleagues from other regional institutions can also counterbalance the isolation of faculty of color. Several respondents suggested organizational sharing processes that would allow faculty members to discuss both professional and personal aspects of their academic lives. A male African American social scientist with tenure commented:

> The first thing that pops into my mind is the whole notion of networking information, connecting with those faculty members of color who are out there and maybe even some faculty members who are not of color could be part of the network, too—who have information, who are working on particular projects, who are at different stages of their academic careers. And the information, maybe it could be connected by Internet or e-mail . . . with this whole new boom in technology . . . that would be a real do-able thing.

"There do need to be support mechanisms," reflected a male Native American social scientist, also with tenure.

> You need much more in terms of support systems . . . because these environments are not of our culture, not of our world. Minority people—we are always fringe members of society. We're never fully accepted. . . . This is America entering the 21st century. It's a racist society, period. That's an issue that many people don't want to address, but that's the truth of it. So if there are going to be minority faculty, there needs to be support for them. Sometimes traveling in packs would help.

"I think it would be great to have a retreat where several of the faculty could get together and talk about their problems, as [well as] the positive things," commented an Asian American woman with tenure in the humanities. "I think to share those ideas across the Midwest would be really great."

A Latina tenured in the social sciences affirmed the "formation of groups of Latino faculty, organizations of Latino employees. Meet with others, use our own language, share experiences in the classroom. Promoting individual organizations by racial or ethnic background."

According to several interviewees, designing and implementing mentor programs would help acclimatize new faculty to academia and the campus community as a whole. Some suggested that mechanisms be created by which department chairs and senior faculty could facilitate the success of faculty of color. One African American faculty member stressed the importance of "find[ing] a mentor, another African American mentor," but noted, "The person doesn't have to be in that school." An Asian American also talked about seeking a mentor because one needs "a more personal, social mentor in more of a classical Greek sense, who is your adviser, and who helps you be safe." Formal or assigned mentors do not always fulfill this second function. A Latino faculty member was able to negotiate a higher salary, "because my mentor said not to . . . settle for less." Whether it is in negotiating salary, feeling safe, or finding a person at another institution to help, faculty from all cultural groups discussed the importance of mentoring.

Support for research and publication is important, too. One Native American said, "We must have diversity in scholarship; Indians get censored even before we get in print. . . . An editor I know implied that research on Indians is second-rate." Faculty spoke of the "unspoken pressure" to publish, the need for journals and publications where minority issues are expressed, and, more specifically, the need for Spencer-like grants for the Midwest region that are targeted to assist faculty members of color.

These three strategies—networking, mentors, and support for research and publication are reinforced in the literature (Blackwell, 1989; Boice, 1993; Cross, 1991; Gainen & Boice, 1993; Harvey & Valadez, 1994; Padilla & Chavez, 1995; Stein, 1994; Tack & Patitu, 1992; Turner & Thompson, 1993) as effective strategies for retaining faculty of color. Not the least benefit of strong retention strategies is their positive effect on recruitment.

Conclusion and Recommendations

A study such as this, in which qualitative data play such a large role, always raises the possibility that the data are "merely anecdotal," isolated incidents, or the words of disgruntled faculty who failed to achieve tenure or be promoted. However, as the survey of literature shows, the concerns of our interviewees echo those reflected in the literature. We argue that the perspectives of faculty of color are especially valuable because they speak from uniquely unrepresented and revealing vantage points. As our study shows, many faculty of color perceive subtle and persistent racism that others seemingly have a stake in not noticing or in explaining away. We need to credit the knowledge shared by our respondents. Olson (1996) tells us that "we can address prejudice only when we make ourselves open to the truth of other people's experience and when we join hands to eliminate it" (p. 30).

Like Smith (1994), we hope for a more pluralistic environment, one that promotes mutual respect and collaboration. Such an environment actually creates one culture, not many different ones. We do not credit the argument that attention to differences leads to "balkanization"—that for a unified institutional or national culture we need to stress what we have in common (sameness), not difference. Rather, we argue that what unifies us is a common attention to, respect for, dependence on, and appreciation of our differences. When we share a culture that values our diversity, we all have a stake in maintaining that culture. Conversely, an emphasis on sameness (e.g., conformity to dominant cultural norms) marginalizes and alienates those who feel different or are perceived as different. Inclusiveness leads to unity; conformity leads to division.

Our data analysis provides the following information related to our study questions. First, general population statistics and faculty occupational statistics alike strongly indicate that African Americans, Native Americans, and Latinos are greatly underrepresented on the faculties of Midwestern universities and colleges.

Second, three factors that apparently contribute to the underrepresentation of faculty of color in higher education are the academic pipeline, market forces, and chilly climate problems. Not only are African American, Latino, and Native American students underrepresented at every stage in the academic pipeline but their numbers dwindle steadily from stage to stage. This problem has been a persistent one ever since faculty ethnicity has been studied. Chesler and Crowfoot (1997) have noted that "strong forces have surfaced to challenge" the multicultural agenda in institutions of higher education and predict that "political will, technical skill, and person power" are required "to persevere in this effort" (p. 34).

The Midwest states are the nation's largest exporters of PhDs. Almost two-thirds (63.5%) of doctoral graduates from Midwestern institutions are "exported" to other places, and minority doctorates are exported at a higher rate than White doctorates—66.7% versus 63.1%.

Interviews with faculty of color reveal that, although they plan to stay in academia, they feel isolated, lack information about tenure and promotion, find their work environments unsupportive, and struggle with gender bias, language barriers, lack of mentorship, and lack of support from superiors. Respondents identify racial and ethnic bias as the most troubling challenge they face in the academic workplace. Although quantitative data show that Asian Americans are well represented, in interviews they also describe negative treatment due to stereotyping. Quantitative data reveal a concentration of Asian American faculty in science and engineering and a lack of representation in administrative ranks. These factors, coupled with the biases they experience, create a difficult work environment for Asian Americans as well as for other racial/ethnic groups.

Third, there appears to be inadequate institutional support for faculty of color in Midwestern higher education. Our survey shows that although 77% of Midwestern institutions consider recruitment and retention of faculty of color a high or very high priority, most offer them little structured support.

We collected data from several exemplary programs that support and promote increased representation for faculty of color. Although highly commendable, most of them share three constraints: many are fully or partially funded on "soft monies"; there is little or no formative or summative evaluation on cost and effectiveness; and most are isolated, not systemic, attempts by a department or a special program. There is no indication that states or participating universities will pick up the financial burden once foundation resources are depleted. Also, targeted initiatives like those proposed by pipeline programs may be challenged in the courts by white doctoral students and junior faculty.

Overall, our examination of statistical and narrative data shows the continued underrepresentation and exclusion of faculty of color in the Midwestern colleges and universities despite civil rights legislation and programs by higher education institutions. Most faculty of color deal constantly with subtle discrimination or bias based on racial and ethnic difference. In addition, our findings suggest that the myth of the unqualified minority candidate continues to affect the hiring processes in the case of the Midwest. The exportation of a good number of minority PhDs and the subtle discrimination described by minority faculty stand in contrast to the perceptions that administrators hold, as reflected in the faculty development survey, that the primary obstacle to recruitment of faculty of color is a lack of qualified candidates. These data may be reflecting different points of view. The argument of "too few" has been challenged in the works of Smith et al. (1996), Mickelson and Oliver (1991), and Light (1994). Though the remaining discussion will focus on increasing the numbers of minority doctorates and addressing "chilly climate" concerns, the issues of qualifications, evaluating excellence, and hiring processes need to be examined by Midwestern higher education institutions as indicated by the overall results of this study.

Based on our study findings, two areas of concern stand out: enlarging the pool of candidates and improving their workplace environment. We suggest that MHEC institutions consider increasing faculty compensation as a way of dealing with both problems. Our findings suggest that higher faculty salaries in the eight study states would do more to raise the numbers of faculty of color than enlarging the pool of minority PhDs. Even a regionwide effort to increase the number of doctorates of color might be ineffective, if relative pay in the academic sector is not competitive and if salary disparities with other regions widened. Higher salaries would strengthen both recruitment and retention.

Currently, the Midwest exports PhDs of color. Encouraging them to stay in the region would increase their representation in MHEC institutions even without an increase in PhD production. Otherwise, Midwestern institutions will not benefit directly from participating in national or regional minority PhD-production efforts.

We would also suggest developing industry/higher education partnership models, including industry-sponsored faculty chairs and joint appointments to faculties and corporation staffs; demonstration projects to design, implement, and extend successful models for improved campus climate; and further evaluation of efforts to reduce the disproportionate leakage of students of color along the academic pipeline.

Nearly all of our informants remarked that faculty of color cannot await improvements in their situation motivated by emerging altruism. Instead, a focused strategy of assistance is needed. None of our interviewees urged a reduction in existing academic standards or expressed a desire for special treatment. Rather, assistance strategies would help level the playing field and neutralize some of the special burdens faced by faculty of color.

Interviewees also urged paying attention to more positive and encouraging professional environments. They advocated intercampus networks for scholars of color, senior faculty mentors, and special support for research and publication. Focused faculty development through networking, mentoring, and research support would help increase representation of faculty of color by making the Midwest a more attractive place to work.

Although mentoring, networking, and research support will not eliminate racism or bias on college campuses, they promise to help build better campus climates in which minority faculty can be equal partners in restructuring the daily interactions of academic life. Such efforts hold out the hope that the next generation will face a warmer climate, benefiting not only minority faculty, but all students, staff, administrators and faculty, regardless of racial and ethnic backgrounds. The Committee on Policy for Racial Justice (1993) described these benefits of the inclusive university: "The education levels and productivity of the next generation of adults will be enhanced and the entire society will gain, at home and in its dealings with other nations"(p. 2).

Notes

[1] More specifically, let
P = general population
P_K = Kth group in general population
P^F = EEOC faculty count
P_K^F = *K*th group in EEOC faculty count
Then this representation ratio of the *K*th group is:

$$\frac{P_K^F/P^F}{P_K/P} = n^K$$

[2] More specifically, let
q = qualified pool (persons 24–70, with MA or PhD degrees)
q^F = faculty (persons in qualified pool who identify their industry as "college or university" and occupation as "postsecondary teacher")
q_K = *K*th group qualified pool
q_K^F = *K*th group faculty
Then the representation ratio for the *K*th group is:

$$\frac{q_K^F/q^K}{q^F/q} = r^K$$

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Paul Michael Privateer

Academic Technology and the Future of Higher Education

Strategic Paths Taken and Not Taken

It may seem odd that an article concerned with the future of higher education should begin with an analysis of a technological phenomenon. The pattern I am referring to is the "time-lag" that often separates the invention of a paradigm-altering technology from its everyday use. European history contains a number of time-lag examples, notably Gutenberg's movable type, Richard Arkwright's cotton spinning mill machine, the automobile, television, and the microprocessor. But more importantly for my interest, technology time-lags provide an opportunity to explore how academic technology policy will impact higher education in the next millennium.

Arguably, micro-information technologies are proving to be powerful forces in shaping the destiny of higher education, comparable to how Gutenberg's movable type revolutionized the production and dissemination of information in Western culture. I would like to argue that current academic strategic policies largely misunderstand the potential of micro-information technologies because they operate from the assumption that technology-mediated learning constitutes a new way of teaching and learning. This premise could neither be more restrictive nor misguided. In fact, what often passes as innovative uses of instructional technologies is generally grounded in a marriage uniting eighteenth-century models of learning with nineteenth-century notions of organizational management. Neither, however, prove adequate to meet the intellectual and communication demands placed on contemporary students. In fact, every time reception-based learning migrates to a computer

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screen—with students memorizing information and then taking onscreen exams—three significant problems recur: (1) far more valuable and contemporary ways of learning are disregarded; (2) important student needs are not being met; and (3) colleges and universities fail to make changes that will enhance their value and well-being.[1]

This article is about exploring how some new strategic paths in higher education may avoid the above problems. The subtitle, borrowed from Robert Frost's poem "The Road Not Taken," suggests that the future of higher education will be about strategic paths taken and not taken. The poem is about having to choose between two paths, each worthy of exploration, each providing equally attractive alternatives. But unlike the path in Frost's poem, the strategic academic technology path currently being taken is not equal to a better one. Higher education is at a crossroads—one path continuing an essentially administrative approach to the management of learning, and a second, promising meaningful change by redesigning instructional technology in terms of being both a strategic and cognitive tool.

Following this second path has two essential benefits: it insures that institutions change in effective ways, and it creates new strategies for deploying learning methods consistent with real world technologies and workplace needs. In exploring this second path, this article charts three areas: the first deals with higher education, consensus building, and change; the second explores changes triggered by global factors; and the third defines "digital pedagogies," new ways of educating more consistent with the nature of contemporary technologies than with prior management models. The purpose of this article is to provoke thought, my main point being rather simple: if American colleges and universities are to become contemporary and effective organizations, their strategic academic technology agenda should be focused on the production of intelligence rather than on the storage and recall of random and quickly outmoded information. In short, our institutions need to articulate a new mythology based upon new connections between contemporary notions of organizations, contemporary global issues, and contemporary technologies.

Part I. Unpacking the Culture of Higher Education

Colleges or universities are more than just their symbolic seals of enlightenment communities. In fact, they are complex cultures that create, order, and manage information, and, as with any organization, they are constituted as dense information networks wound together by ideological and technological strands. Exploring academia as a complex information system accomplishes two things: first it reveals an important but often overlooked parallel evolution between higher education and industrial management methods, and, secondly, it reveals why a dependency upon authority-based management is retarding the modernization of higher education. Historically it is easy to see how seventeenth- and eighteenth-century theories of truth (efforts to stabilize random information by inventing a systematic method based on regularity and certainty) fueled the invention of high-efficiency technologies, hierarchical management models and mass production strategies, elements that clearly define the Industrial Revolution.[2]

This industrial heritage plays a determinant role in how contemporary academic strategists misunderstand the potential of instructional technologies. The only way that most of these strategies can be justified is if we assume that organizations are immune from socioeconomic forces or that knowledge production is not a technologically aided activity, two assumptions that may have made sense to seventeenth-century thinkers but are now clearly out of date. Nevertheless, one would think otherwise, given the ways in which strategic thinking directs the application of academic technologies in most colleges and universities. Rarely, for instance, do technology strategists take into account how computers can support different kinds of learning or why certain kinds of learning environment strategies are more effective than others in stimulating new kinds of workplace skills or in preparing students to become new kinds of employees or world citizens. Those who think that technology in itself is the much-needed revolutionary force in higher education misunderstand computational machine ancestry, especially because not all information technologies and applications have the same cultural, economic, or cognitive impact.

The belief that technology is a panacea or that computers are universal change agents is evident in several cultural venues. In academia there is the tacit assumption that instructional technologies can spearhead serious institutional reform because they create real change, especially in the area of course content and delivery. Nothing, however, could be closer to and farther from the truth, given our definition of "change." There is also another popular idea, evident in the media, that computers and video games alone "can actually help . . . children learn" as a *Business Week* cover announced on December 23, 1996. The implications of this naive infatuation with automated learning are significant, especially to the future of higher education as the distance learning agenda continues to grow. Innovational uses of technology, grounded in traditional notions of teaching, will not bring about important reforms needed to reduce the cost of higher education and create first-rate learning environments. In essence, higher education must understand and act upon the fact that the change extending the life of a controlling paradigm is not the same change that produces a new one. Without understanding this difference, policy strategists may not understand how to capitalize fully upon the computer's power to revolutionize learning.

Change and the Historical Evolution of Higher Education

Two issues focus this section: one pursues an analogy, the other distinguishes "restructuring" from "re-engineering," terms popularized during the reinvention of corporate America during the past decade. My point here is that much needed change in higher education will not be achieved by continuous organizational restructuring. What is needed instead is a re-engineering of what we do and a reinventing of what we produce. This appeal has been made before, but often without detailing how such efforts might take form.

First off, the analogy. There is a cerebral cardiovascular accident (stroke) that affects memory and perception in unique ways. A clinician moves some carrots from the right side of a plate to the left and then asks her temporarily distracted patient to finish eating them. The patient returns to the plate but does not see them until the carrots are returned to their original location. This illness reveals that memory and vision operate together cognitively, with "truth" often determined by how stimuli are converted into configured signs before being neurologically contextualized, assigned meanings, and associated in memory with what is already known. Organizations, like individuals, function in similar ways, achieving stability by creating, ordering, and controlling information contexts. Sometimes this need to stabilize either blinds organizations to the need for change or deceives them into thinking that the change they envision is paradigmatic change. The clinical analogy implies that institutions of higher education, like stroke victims, have generally perceived the need for change from within their traditional mindsets, habitual ways of doing business, ill-equipped to make meaningful and significant changes dictated by forces discussed momentarily.

Secondly, in the past decade, many large organizations have used computer and information technologies to successfully re-engineer themselves. They have accomplished the task by redesigning their information infrastructure. Successful companies during the 1990s flourished because they chose not to restructure themselves from within existing frameworks. Instead these companies employed information tools to help them rethink, reconceive, and remap their entire processes. When re-engineering has worked, it clearly has cut costs and has increased productivity and profits. Success was achieved because the conventional was ignored in favor of an essentially new infrastructure that created a new culture from inside out. Higher education, by contrast, has not made similar progress because it has been preoccupied largely with restructuring efforts. In addition, many colleges and universities have used information technology tools to improve existing administrative procedures but have not given equal effort to re-engineering the academic side of the house, creating an equivalent academic version of an IT associate provost or using business process re-engineering methods to cut costs and improve instruction by (1) revisiting and streamlining course contents and course offerings, (2) lowering the costs of new program and curriculum development, (3) inventing interdisciplinary-based general education requirements (archived and migratory course information), (4) maximizing revenues for each course, or (5) giving students alternative choices for taking courses grounded upon new pedagogy.

One suggestion for carving out a different strategic path is to think of instructional technologies as tools for re-engineering and reinventing curriculum. By making us rethink the relationship between new pedagogical forms (e.g., learning as collaborative, application-driven instances of constructivist, impasse, discovery, or problem-based cognitive theories) and new ways of justifying their costs, instructional technologies can play a vital role in creating a new mythology for higher education. In essence, how can computer- and telecommunication-mediated instruction assist colleges and universities in reinventing themselves as "virtual" and "real" places in which students can transcend outmoded ways of gathering information to become new kinds of learners, driven by the desire to use their intelligence to solve problems? By discovering answers to this question, we will begin converting institutions of higher learning into academic learning organizations. This sense of a new purpose—of creating new kinds of applications-based and multipurpose curricula with instructional technologies—is important, because many colleges and universities have been unsuccessful in forging a new vision of their mission, given their arguably ineffectual response to socioeconomic forces that have affected other industries and businesses. For instance, in a study of healthcare re-engineering, Hickey, Ouimette, and Venegoni compare the evolution of healthcare with the demise of the railroad. Their argument is applicable to many modern organizations, including higher education:

> The railroads died not because of interstate highways, airplanes, trucks or buses, but because the people who ran them really liked "choo-choos." Those people forgot they were in the transportation business. . . . By analogy, hospitals are operated by people who are fascinated with huge white buildings . . . (having) forgotten that they are in the healthcare business

> and not in the business of building and expanding more impressive hospitals. (1996, pp. 12–13)

This observation is clearly applicable to higher education. As suggested in the following section, an entrenched "replicant paradigm" prevents many academic strategists from recognizing the potential revolutionary power of academic technologies because of a conventional sense of their cost-benefit ratios. This sense of value is problematic for several reasons. For instance, instructional technologies are not like boxes of pencils with simple price tags, simple functions, and simple outcomes. In fact, they are not discreet objects at all (a computer here, a television-distance learning production studio there), but rather they are intricately related and highly integrated learning systems. Odd that we continue to justify instructional technologies in terms of measurable cost-benefit ratios, when, for the most part, their cost, deployment, maintenance, and relationship to mission-critical outcomes are rarely measured, let alone an understanding of their defined and proven cognitive mission.

A second suggestion for creating a different strategic path is to develop learning outcomes that are consistent with how instructional technologies can be integrated throughout the curriculum. Creating a set of common, multidisciplinary learning outcomes for students at a given institution[3] can spearhead a strategically guided approach to technology-mediated instruction. Ideally, students enrolled in several courses would know that regardless of what computer they used, similar learning outcomes would be expected from them from each course. Although the costs of buying and maintaining computers, high-tech labs, faculty development or instructional design offices, servers or a series of networks can be calculated,[4] their instructional benefits may be impossible to measure given the paucity of evidence they produce. For example, do instructional technologies produce better graduates, and if so, how does that happen, and how can that success be measured? And if they produce new forms of instruction, then what different kinds of criteria would measure those differences and the results produced? Would that criteria reflect what a college graduate will need to know in an increasingly globalized world of rapid knowledge life cycles? It is far easier to justify the expense of instructional technologies and continue the status quo when they replicate familiar instructional delivery methods, but less so when they form part of a broader effort at pedagogical reform. Hundreds of students sitting in front of computers in large campus high-tech centers present a picture of pure productivity. Yet this literal visibility is deceptive; the illusion that effective learning is taking place all but prevents the development of other and arguably more potent pedagogies. As long as instructional technology is made to imitate the pedagogical status quo, there will be little opportunity to imagine how new pedagogies and cognitive technologies together can help create a new notion of cost-benefit ratios, important to those charged with holding down costs and keeping them compatible with inflation rates.

This literal presence of computers on campus, together with a decade old call to "do more for less," factor heavily in the growing tendency of federal officials, governors, legislators, governing boards, and college and university administrators to envision instructional technologies as a panacea able to maintain the status quo while dramatically cutting delivery costs. The allure is certainly powerful: lower overall operating and administrative costs, more automated and time-independent instruction, less yet more "productive" instructors, greater course availability and offerings, and access to lower cost resource materials all translate into savings. The argument is equally powerful: why should institutions continue to pay the high costs of traditional delivery methods when new technologies can make education available in presumably newer, better, and less costly ways.

The argument grounds several international and national initiatives. For instance, there is the Delta Project, headquartered in Brussels, The Global Lecture Hall, the British Open University, and the Western Governor's "Virtual University" Initiative. With Utah Governor Mike Leavitt's interest and energy, the "virtual university" will offer on-line courses furnished by partnering institutions. In theory, the collective would lower the cost of developing and deploying courses, make competency-based degree and certificate programs available to those preferring non-site instruction, and use in-person examinations as the primary assessment methods. Discussion focused exclusively on favorable cost structures ignores the fact that how a student learns is directly related to skills he or she must develop to compete in the next millennium. Remote access to course information and memory-based examinations alone are inadequate to meet the skill requirements students will need in the future, skills like metacritical thinking, reasoning through symbolic and abstract codes, the use of inferential and synthetic thought, effective group management and participation skills, and inventive or constructivist design experience. These significant factors are simply absent at most strategic sessions. The old adage—one gets what one pays for—could not be more ironically true, especially when we recognize that the agenda for reducing the cost of higher education places far greater strategic emphasis on how course contents can be packaged and routed to student consumers than on preparing students for what they will need to know when they graduate.

To argue that current technologies can deliver a better education for less money raises several questions. Technology can do this because it is immune from time and space limitations. The fact that modern students may not be receiving the skills and learning environment experiences needed for their future should quiet celebrations about using technology as simply a cost-reduction tool. Cost reductions, in themselves, are meaningless if the value of the product is substandard. As hinted at earlier, instead of being revolutionary enough to meet some pressing academic needs, today's instructional technologies generally replicate education practices grounded in primarily two-hundred-year-old administrative management methods. The ways in which learning is conceived and managed at most colleges and universities are grounded in a tradition of industrial management strategies used to create orderly systems of production. Looks may deceive, but in this case modern education owes a great deal to the factory system, to the regularization of work time, and to such values as rapidity, standardization, precision, and accuracy. Traditional classrooms resemble production lines; larger lecture halls correspond to low-cost, low labor intensive assembly line sites, with students coming in from one side and leaving from the other as one class finishes and another begins. Grade books are production matrixes that locate production values to specific linear squares, while students are credentialed on the basis of accrued or inventories of "units." Traditional methods of creating and teaching a course are based on an economy of information cycling, with the presentation, storage, and recall of data structuring most classes. Intellectual success, moreover, is measured by essentially administrative, rather than performance tools. One can surely ask, does this way of doing business make much sense anymore?

The growing temptation to automate learning without creating new cost-benefit models consistent with contemporary educational values has two significant consequences:

1. The continued use of inadequate methods of instruction—the industrial administration and replicant models—continues to be sanctioned under the guise that technology in itself produces new ways of learning; and
2. As it moves forward, "virtualizing" what is arguably already inadequate, the automation strategic agenda will certainly restrict and may even prevent using technology to create more modern and responsive instructional strategies.

A quick sidebar. Some critics have used the term "manic logic" to define the seemingly out-of-control atmosphere surrounding the role of technology in American education and, with it, various and sometimes frenetic and blind beliefs that somehow a computer in itself helps students to learn. For example, there was President Clinton's campaign call that by the end of the century there should be a web-linked computer in every American classroom. It is significant that no one asked him why, or what role the machine would play in a broader, more strategically guided pedagogical revolution, or what new kinds of teachers were needed to maximize the academic value of students being able to retrieve information quickly, or what kinds of learning environment management changes would have to be made to capitalize upon the value these machines would bring to the classroom. What would be the pedagogical or cognitive benefits of giving students hyperspeed access to every book, video, article, or graphic ever made? In short, my argument is that the trend toward using technology as a lower cost-higher benefit panacea actually continues a quarter-century of inadequacy in higher education.

Regardless of how one understands instructional technologies, their use invites us to rethink traditional notions of the cost-benefit ratio of higher education, looking more at the cost of developing such benefits as intelligence and group-management skills rather than lowering costs to gain the seemingly simple benefit of making the same course information available to a wide audience of "information consumers."

Consensus About Instructional Technology

The last theme in this section deals with how the instructional technology time-lag will be managed as it narrows, gathers consensus, and becomes a habitual way of educating. During the past decade, the increase in the amounts of computers committed to instructional support suggests a growing, yet rarely articulated consensus about their perceived value.[5] The shaping of this consensus deserves special attention, because nothing has the power to shape the future of higher education as much as current strategies for deploying academic technologies, strategies that should begin to explore the real revolutionary nature of technology instead of restricting its role to simply automating the delivery of instruction. With the power to change the ways in which we educate, instructional technologies, like their counterparts in business and industry, may either write higher education's obituary (as US Steel and other pillars of the industrial revolution can testify, given their demise by automational technologies) or, like healthy genes, may lay the foundations for twenty-first-century colleges and universities.

This article has explored the growing trend to increase the role of instructional technology in higher education, arguing that this trend is neither what it seems nor, most importantly, that it will be able to meet critical student needs. Hence, the ***strategic path not being taken.*** As suggested earlier, higher education is at a strategic academic technology crossroads, obviously needing to develop new learning technologies for new kinds of learning but restricted from doing so because of an adherence to a tradition of "reproduction-based" rather than "invention- and intelligence-driven" technologies. Reproduction technologies have dominated modern higher education and have effected community consensus since the seventeenth century: these are the mechanical technologies of movable type, copy machines, non-hypermediated information indices (library card catalogues) fixed-site classrooms, time-dependent learning, and the centralization of information resources (textbooks, the professor as the authority, and the test as an all-inclusive source for assessing what a student knows). Each is characterized by a technology to transmit duplicated information, whether from a mind to a machine or vice versa, or a textbook to a learner, an instructor to her students, or a student's transcripts to a potential employer. Each of these technologies is grounded in an eighteenth-century-constructed model of truth, to a way of knowing the world expressly empirical and representational in nature. This form of knowing is evident whenever a person subjectively reproduces or "re-presents" (making present again) a presumably objective entity, often with some kind of technological aid. In this paradigm, truth becomes valuable in terms of a fidelity, of producing mirror-image reproductions of external things, whether on art canvases or within mathematical formulas or within laboratory models. Whatever the larger implications of this paradigm—the scientific method—it is clearly grounded in the notion that the more an experiment produces "identical" results, the more absolute truth comes into focus.

Reproduction technologies have dominated higher education in other ways, particularly in the development and application of administrative technologies. This explains why, for example, accuracy, measurement, examination, and adequacy together became dominant ways of understanding the world, of ordering our institutions, and of objectifying knowledge, the latter being the most familiar to students. One of these administrative technologies, lecturing and testing, largely defines academic value by examining students on their ability to reproduce information within a fixed time period. Tests are often echoes from lectures. Or, in another instance, the testing of a student's knowledge by requiring them to "fill in the blanks" exemplifies reproduction-based technology. This is a case in which a student's acquisition of abstract knowledge is measured in terms of the percentage of empty spaces quickly being transformed into reproduced data.

For simplicity's sake let's call this education paradigm the replicant model. It is a unique paradigm because, it is the first time in Western culture in which the accuracy of reproduction determines levels of productivity and, hence, value. In essence, the quicker and truer the imitation, the more valuable it and its producer. The effect of this replicant paradigm seems obvious; it is present whenever our students are given rewards on the basis of their ability to recall and replicate course information, and it is precisely this paradigm that grounds current strategic thinking related to the deployment of academic technologies. The problem is that the long-term effects of this paradigm are being ignored in the rush to unpack more computers for general student use. Although valuable for the last three hundred years, the continued dominance of the replicant paradigm will seriously atrophy the potential of digital age technologies. In essence, the eighteenth-century model for empirically based truth, learning, and production is now a poor candidate for determining the future role of instructional technologies. Put in another way, the replicant paradigm—the parent of contemporary technologies—stands in the way of its own evolution. Our machines and technologies are no longer bound simply to computing, measure, and manage information in order to replicate objectified notions of truth, but they are able to invent and explore new kinds of information, knowledge, and truth. In a nutshell, higher education needs to reexamine its desire to set sail for a new horizon on essentially an old ship, thinking that technology is a revolutionary change agent when, in fact, its current deployments are anything but revolutionary. Revolution—as French history reminds us—has two meanings: to return to the same point, as in an elliptical orbit, or sudden, radical, and fundamental change. The ambiguity explains why most of us think instructional technologies will bring about revolutionary change in higher education, yet often mean something entirely different when thinking about significant and meaningful change. To be truly a revolutionary force in higher education, academic technologies should

1. be deployed in new kinds of academic environments driven by a real understanding of change,
2. reflect an understanding of the underlying catalysis for this change, and
3. be driven by an understanding of how new digital technologies require radically new and different notions of pedagogy.

I should like to discuss these issues in order to show why each plays a critical role in carving out a new strategic path for deploying instructional technologies.

Part 2: Global Forces and the Demand for Intelligence

Insight often comes from the most unlikely places. The strategic path I am urging—the one that converts instructional technology into a strategic management tool[6]—is indirectly supported by issues raised in Paul Kennedy's *Preparing for the Twenty-First Century* (1993). In chapters dealing with automation, financial revolutions, and the rise of multinational corporations, Kennedy explores future relationships between the production of knowledge and the nature of work, with the information production itself being treated as a commodity value. Kennedy explores several implications related to his primary focus—the doubling of the planet's population to 15.3 billion by 2050 AD (p. 23). The increase will strain physical and intellectual resources, challenge the earth's ability to sustain life at this new level (despite the development of new, high-yield agricultural technologies), and limit the human ability to solve these immense population-driven problems without the intelligence to do so, especially because those countries experiencing the highest of population increases will not see a dramatic rise in per capita income. A sobering question comes through the facts and figures: how can the intelligence cultivated within higher education be produced by the 9 billion people whose estimated per capita income will rise from $278 to $356.00? The value and cost of education will certainly become a luxury in countries needing it the most, while solutions coming from countries that can afford education may not be sufficient in number and quality to meet the impact that the doubling of the earth's population will have globally. Nothing makes the case for higher education to become a producer for intelligence as does this doubling of the earth's population within the next fifty-three years.

As Kennedy notes, the future will consist of haves and have-nots. There will be a growing gulf between a wealthy class, whose technological mobility gives them little reason to be citizens of a particular nation-state as they deposit more and more E-capital in cyberbanks, and other classes, who have little opportunity to manipulate these new technologies. There will also be significant differences between the types of knowledge that will create these wealth disparities. Simply put, profound differences will exist between those who produce knowledge through new technologies and those who do not:

> Globalization also affects the career expectations of individuals and the structure of employment generally. In the United States . . . lawyers, biotechnology, engineers, economic editors, software designers, and strategic planners are in demand because they contribute a high "value-added" to whatever they are working upon. The demand for their services is interna-

> tional . . . just as the means of communicating this knowledge (via Express Mail, or fax) are also international. (Kennedy, 1993, p. 59)

Kennedy's next point should make all educators sit up and take notice, especially because the profession has assumed that its role as a dominant knowledge source is assured, presumably immune, as it is, from economic fluctuations and technological changes affecting other kinds of workers. Kennedy argues that

> unlike the fast-food server, or the local policeman or schoolteacher, or the blue-collar worker, these creators and conveyors of high-added-value information [those listed above] are no longer linked to a regional or even a national economy. They have become functioning and prosperous parts of a borderless world—and, like the growing number of their equivalents in Europe, Japan, and Australasia, will remain so just as long as their education, skills, expertise, and inventiveness are in demand from distant consumers. (1993, p. 59)

If correct, Kennedy's thinking suggests that colleges and universities must develop far more thoughtful and defined strategic plans, what we might even call survival strategies. His scenario makes it clear that teaching has to become a "value-added-intelligence producing" occupation if it is to survive as a knowledge-producing activity without losing competitive edge to corporate universities, those we see already flourishing every time a Motorola, an IBM, an Intel, a UniSys, or a Microsoft inaugurates a "learning campus" to support their research and development interests. For higher education to retain its tradition of being our culture's primary knowledge site, it must produce different kinds of outcomes, especially students who have been encouraged to develop their intelligence from within curricula that contain "valued-added knowledge" imparting several "value-added" skills. Those institutions unable to meet the needs of a new knowledge globalized society will lose competitive edge to organizations who use technology in making rapid deployments of current knowledge and educational programs available to "high, value-added" workers. Steadily increasing consumer demands to enter this new working class will have two related effects: they will create a need for new and more highly responsive knowledge organizations, which, in turn, will devalue traditional modes of educational delivery, those, like the "virtual university" model, who in launching the status quo into cyberspace, still promote the value of information-storage-based learning rather than intelligence-problem-solving-centered communities of learners.

To complicate this already complex scenario, add Kennedy's glimpse into a future of highly automated services. His chapter on robotics, for instance, suggests that academia may be fueling its own devaluation every time it uses industrial-age management methods to create presumably "real" change by automating the delivery of instruction. Such is the ironic law of industrial automation. Humans create technologies that are then eclipsed by other technologies. When industrial robots weld cars, machines produce machines. Automation is always the last step in this process, simplifying tasks, cutting production costs, in order to provide humans with the time and resources to continue inventing new technologies. Two machines always operate within the theater of human technology, the already working machine permitting its creator to invent a newer one. Whenever a machine or an automated system replaces a human being, the product is a savings in time and value that gives the human community more time to solve more complicated problems. When one uses this technology pattern as a backdrop to current strategic academic technology issues, something interesting takes form. Calls for "virtual" universities, more web-based distant learning courses, more self-paced instruction, and higher faculty productivity via automated solutions are loud echoes of clearly industrial ways of thinking about production. It makes little strategic sense to be urging technological solutions to automate the transfer of information, when what is clearly going to keep higher education competitive is a balanced strategy that uses technology to invent intelligence and encourage demonstrations of metacritical reasoning and effective use of symbolic languages and team-based communication skills in solving a range of problems.

Kennedy's appraisal of the future has two serious implications for higher education. The trend to continue automating the conveyance of information produces more of what will be needed least. Automation will require fewer professors to teach primarily content-driven courses to cyberstudents enrolled in digital colleges, this in a world requiring groups of intelligent people to solve critical problems. In fact, the more colleges and universities transfer their traditional methods of instruction to computer-mediated forms of instruction—with the computer becoming nothing more than a large lecture room—the more chance they have of limiting their potential socioeconomic value. Opportunities for real change lie in creating new types of professors, new uses of instructional technology and new kinds of institutions whose continual intellectual self-capitalization continually assures their status as learning organizations. The final section of this article speaks to what gets lost when information technologies are made to imitate the instructional status quo and when strategic thinking misconceives the nature of computer-mediated instruction.

Digital Pedagogies and Academic Technology

Reinventing instructional technology is a critical element in creating a new strategic path for higher education. The first step in rethinking the potential of this technology is to convert it into a strategic tool tied to well-defined and well-researched institutional objectives. Nearly every college and university mission statement lists "quality teaching and learning" as one of its key strategic objectives, yet few have done the difficult work of defining in detail what "quality learning" means when related to criteria such as new workplace skills, global forces, and individual student needs and then linking those criteria to strategies by which instructional technology can be used to achieve them. Often the only strategic consideration given instructional technology is focused on the question of how many computers will be needed to support traditional instructional methods. What is missing are proactive questions about how each machine, its functionalities, applications, availability, platform standards, and network linkages can satisfy the essential cognitive needs of students enrolled in courses woven together by instructional practices tied directly to those "quality learning" criteria identified during initial strategic analysis sessions. To produce a well-articulated strategic plan, institutions need to create courses that are cognitively, pedagogically, and informationally aligned, reflecting in content and execution larger socioeconomic issues and using instructional technology to do more than simply access or transfer information.

Re-engineering instructional technology requires distinguishing two kinds of pedagogies. This is a critical step if course information is to take form as real knowledge and if course learning outcomes are to reflect larger strategic institutional objectives. One of these pedagogies can be defined as the development and presentation of course materials and the other as the application of learning management strategies. Though instructional technologies can assist both of these, most support the first. The primary difference between the two lies in what the management of course information is supposed to achieve. Traditional approaches to teaching are regulated by very specific disciplinary, not institutional, objectives. For example, when a student enrolls in a Sociology 101 course and takes a series of exams for a letter grade, very little in the way of strategic institutional objectives are built into how the course is taught or what performance measurement tools will be used to assess the relationship between a student's participation and broader institutional objectives. It is one thing to present a lecture on the causes of the American Civil War—glitzed with Power point graphics, web-pages, and CD-ROM stored video, images and sounds—and then to test students on the retention of lecture-produced information. It is quite another thing to use learning management strategies that place course information on a web page for such strategic pedagogical reasons as

1. using on-line portfolios as a performance measurement tool, closer in nature to their human resource counterparts;
2. dividing course information into expert areas for both asynchronous and live opportunities for collaborative learning;
3. creating on-line appointment schedules for faculty to meet with students to assess their collaboratively produced solutions to unit problems; or
4. producing live audio-visual conference sessions for international student team collaborations as a precursor to students working in a future of growing globalized organizations and companies.

In contrast to the above glitzy example, this second learning management strategy model would make the cause of the American Civil War a problem, providing each student in a team with the expertise to make the case for a specific cause, and then using instructional technology to manage learning activities rather than simply providing large amounts of information to be memorized and quickly forgotten.

To provide a new institutional mythology, instructional technologies should not be used as elaborate versions of portable student slates, larger and dynamic blackboards, overhead projectors or textbooks. These are static technologies, used traditionally to make information available to large amounts of students. The delivery of static information should no longer be the primary product of higher education. Colleges and universities need no longer function solely as a culture's hard disk, producing students who then, like floppies, carry information to other nonacademic organizations. In essence, every classroom should be a knowledge laboratory using management strategies and complex knowledge matrices that require students to test and apply that knowledge in simulated applications.

Converting instructional technologies into learning management support tools helps students gain valuable knowledge opportunities and provides a way of relating intended outcomes of well-defined strategic goals to what constitutes "quality" learning. The computer promises to revolutionize higher education not because it duplicates an outworn and arguably rarely effective instructional tradition, but because it is capable of uniting new ways of knowing with new ways of learning. This potential has been argued by new knowledge advocates of computer technology appearing together in Howard Rheingold's *Virtual Reality* (1991).

The late Heinz Pagel, for example, argued that for the past three hundred years science has produced a

> view of nature [that] is not wrong, but it has been powerfully shaped by available instruments and technology. The computer, with its ability to manage enormous amounts of data and to simulate reality, provides a new window on that view of nature. We may begin to see reality differently simply because the computer produces knowledge differently from the traditional analytic instruments. It provides a different angle on reality. (Rheingold, 1991, p. 13)

Or there is Ivan Sutherland's idea that the "digital computer gives us a chance to gain familiarity with concepts not realizable in the physical world" (Rheingold, 1991, p. 13). Then there are the more advanced potentials of computer technologies that immerse students within artificial experiences restructuring cognitive habits. For example, students might get a much different understanding of Dali, the surreal painter, if they were given sample fragments from various surrealists and then asked to tour a virtual museum to overlay these fragments on partial paintings to see if they "fit" or if students literally entered the "world" of a Dali painting to move objects around to discover the relationship between form and meaning.

Rheingold (1991) quotes Frederick Brook's belief that there are "three areas in which computers are more skilled than human minds [they] are evaluations of computations, storing massive amounts of data, and remembering things without forgetting" (p. 38). Ironically these are the guiding values of traditional and low-strategy ways of teaching. Students normally receive high grades when they store course materials and recall them upon demand. New and more strategic uses of instructional technologies are capable of bridging the old and the new, giving computers the job assigned students so that they, in turn, can meet the intellectual demands the world will put upon them, able to problem-solve, to invent new ways of creating knowledge, and to communicate that knowledge in a number of technologically mediated venues. This new use of technology comes close to the concept of "bricolage" Seymour Papert defines as being central to the learning process, a kind of cognitive tinkering learners use to test abstract theory by playing with objects in the natural world (Rheingold, 1991, p. 375). Douglas Engelbart, too, presents a vision of this new way of learning, referring to it as

> a way of life in integrated domains where hunches, cut-and-try, intangibles, and the human feel for a situation usefully coexist with powerful concepts, streamlined terminology and notation, sophisticated methods, and high-powered electronic aids. (Rheingold, 1991, p. 68)

Lastly, there is also the promise that instructional technologies may actually effect new modes of cognition:

> When everything being dealt with in a computer system is visible, the display screen relieves the load on the short-term memory by acting as a sort of visual cache. Thinking becomes easier and more productive. A well-designed computer system can actually improve the quality of thinking. . . . A subtle thing happens when everything is visible: the display becomes reality. The user model becomes identical with what is on the screen. Objects can be understood purely in terms of their visible characteristics. . . . One way to get consistency into a system is to adhere to paradigms for operations. By applying a successful way of working in one area to other areas, a system acquires a unity that is both apparent and real. . . . These paradigms change the very way you think. They lead to new habits and models of behaviors that are more powerful and productive. (Rheingold, 1991, p. 76)

It is clear that the majority of contemporary uses of instructional technology still reflect eighteenth- and nineteenth-century notions of teaching and instructional delivery. We can also say that they have little to do with creating new strategic agendas in higher education or even in learning itself, the kind of learning management systems this article has tried to describe.

In summary, in this essay I have argued that there is a better strategic path for higher education to take in the future. If our colleges and universities want to reinvent themselves, they have to take a long and hard strategic look into how their delivery of instruction conflicts with the cognitive potentials of contemporary information technologies. It makes little sense for academia to continue a tradition of learning significantly at odds with technologies that are currently altering how humans learn and interact with each other in new learning communities. If our computers are becoming smarter, able to selectively retrieve, store, and alter highly volatile information life cycles, then the role of the learner is changing too. Our students need no longer function like machines that replicate a "master" knowledge of something that will surely change because technology will continue to make more information available than ever before, especially with quantum computing and nanotechnologies looming in the near future. Our students, like our institutions, should be prepared for a different path, a road that provides everyone the opportunity of enhancing their intelligence by using information technologies deployed in strategic ways that as of yet have not been articulated.

Notes

[1] Peter Drucker (1997) has argued that "thirty years from now the big university campuses will be relics. Universities wouldn't survive. It's as large a change as when we first got the printed book." The reason, he insists, is "that the cost of higher education has

risen as fast as the cost of health care" and that "such totally uncontrollable expenditures, without any visible improvement in either the content or quality of education, means that the system is rapidly becoming untenable" (p. B7).

[2] The social history of modern higher education reveals that the industrial revolution had the profound effect of radically changing the nature of classical pedagogy, introducing into it the idea of evaluation based on mathematical and production models. Prior to 1780, universities scholars and administrators had little reason to develop or grade "units" of instruction (reflecting how the scientific method of reductive parts evolved into production methods), the use of grade books resembling production documents, of regulating learning in terms of the linearity of mass production and its ubiquitous supervision (students moving, standing or sitting passively in lines along with "quads" or "proctors" functioning as panoptical surveillance devices), or, finally, the use of computer technology to streamline administrative procedures that also automate reception-based methods of instruction.

[3] College and university committees on instructional quality could easily create and disseminate a learning outcomes document asking faculty to contribute to the establishment of desired student outcomes, listing such standardized goals as metacritical understanding, increased comprehension and retention of course information, and increases in such value-added elements as communication, problem-solving, research, computer use, and group productivity skills. This document would form the basis of deciding on what kinds of technology-mediated programs and machines would be deployed. In essence, the strategic goal is to link what computers can do to a consensus of what common learning outcomes would be served by technology-mediated instruction.

[4] See Kenneth Green's (1995) "Campus Computing, 1995."

[5] A review of the literature illustrates this point very well. For example, there is little agreement whether technology is a true change agent. Steve Gilbert (1995), like many others, is not sure whether technology has increased academic productivity (p. 10). A common theme is that technology's promise to transform learning in higher education has not been kept and for a number of reasons. There have been numerous arguments made for using technology to transform teaching and learning, yet there is little indication nationwide that institutions are implementing strategic programs in which the curriculum is being reconfigured on the basis of technologically driven constructivist and collaborative learning models, or that direct links are being made between knowledge and application, or that the technology is being deployed to manage information for project-based learning, rather than continuing to imitate the standard lecture model as a source of information (pp. 16–18). There is little doubt that continued concentration on technology as a productivity or information-access enhancer, at the expense of using it to revolutionize pedagogy, will keep technology from realizing its true revolutionary destiny.

[6] As a management tool, technologically mediated instructional delivery systems can be explored in terms of new productivity stream configurations, common cross-disciplinary learning outcomes, intelligence-based pedagogies, the creation of course archives for learning community development and curricular restreaming, and continuous information technology literacy skills.

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The Impact of Role Conflict and Ambiguity On Academic Deans

In the academic anatomy of institutions of higher learning, deans provide the delicate but crucial backbone of university decision making. They, more than any other academic administrators, link central administration with academic departments. On the one hand, they serve as extensions of the presidency (through the provost); on the other, they are regarded by many as extensions of faculty. And, herein lies the bind.

Deans are caught between the expectations of their colleges' departments and those of the central administration (Baldridge, 1971). Each group, because its success depends on the dean's performance, develops beliefs about what deans should and should not do (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964). These expectations shape perceptions and understandings of the roles in which deans engage. In other words, the role of dean, and how it gets enacted, is influenced by social norms, by the perceptions of those who interact with deans, and by personal abilities (Biddle & Thomas, 1966).

Through such interactions, deans create meaning that determines their behavior in given situations (Woods, 1992; Hewitt, 1997). As administrators in hierarchical settings, deans behave in ways that seem situationally appropriate to them, given the demands and expectations of those with whom they work (Sargent, 1951; Getzels, 1952). For example, a dean bargaining with a provost over a spousal accommodation for a prospective hire finds him- or herself in a different type of situation

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than when dealing with faculty and departments that are battling over office assignments and space allocation. The social behavior employed by a dean in the first instance might lean toward persuasion and toward negotiation and arbitration in the second.

When expectations of the university run counter to those of the faculty, or when expectations of either entity remain ill defined, deans who attempt to meet these expectations experience a certain amount of disequilibrium. For instance, the central administration may direct deans to cut costs, an ambiguous assignment at best; faculty may want deans to spend more on travel, research support, and equipment, a desire which is in direct conflict with the university's edict of fiscal restraint; and the dean faces a no-win situation.

To complicate matters further, deans walk a delicate administrative tightrope. They head professional bureaucracies (colleges) within professional bureaucracies (universities) (Ryan, 1980). As a dean within a university, he or she holds legitimate authority, but within his or her college such direct power can rarely be exercised. Here, the dean functions as a disciplinary expert, who happens to be carrying out administrative tasks, among other disciplinary experts. From the university's perspective, the more direct and decisive the dean acts, the more effective he or she is. From the college's perspective, such direct use of power is liable to bring him or her down.

Deans do, however, exercise a great deal of indirect power over faculty. They negotiate jurisdictional disputes—who controls what rooms, what programs, what resources. They resolve coordination problems between the college and the university—when universities decide to improve education quality, deans coordinate efforts across colleges to bring programs in line. In doing so, deans buffer faculty from the university's intrusion upon and usurpation of their professional autonomy. In the end, faculty have the opportunity to define education quality and to determine how to improve it. Perhaps, this ability to act as the college's liaison, advocate, and spokesperson to the university provides deans with their greatest source of influence among their peers (Mintzberg, 1983).

Even so, deans who wish to devote time to administration at the expense of scholarship, and who do it well, sit at the seat of uncertainty. As professionals among professionals, deans stay in control only as long as their faculty, on the one side of the table, and central administration, on the other, perceive that they are serving faculty and/or administration interests effectively.

Indeed, today the vision of the dean as a quiet, scholarly leader has given way to an image of the dean as an executive—politically astute and economically savvy. Tucker and Bryan (1988) describe them as doves of peace intervening among warring factions, dragons holding internal and external threats at bay, and diplomats guiding and encouraging people who live and work in the college. Each role—dove, dragon, or diplomat—is ripe with the possibility of conflicting expectations and ambiguous interpretations. The parties involved, the situation, and the potential consequences of actions taken color the end result. The dean, in the meantime, may have to deal with conflicting and ambiguous roles. This article focuses on the impact of role conflict and role ambiguity on deans. It further suggests possible policy implications such findings hold for universities, in general, and the deanship, in particular.

Role Conflict and Role Ambiguity

Deans are often confronted with situations requiring them to play roles that conflict with their value systems or that conflict with each other. In a sense, they face the dilemma of trying to serve two masters—a faculty who wants the dean to remain inwardly focused on the everyday workings of the college and a provost who asks deans to assume duties external to the college. On the one hand, deans may be asked to provide personal support for department chairs and on the other be required to evaluate them. This constitutes role conflict. Role ambiguity relates to the degree to which we have sufficient information to perform the task or to ambiguous and problematic work requirements and performance expectations (Merton, 1957; Gross, Mason, & McEachern, 1958; Kahn et al., 1964; Rizzo, House, & Lirtzman, 1970; Carroll, 1974). When universities charge their deans with the responsibility of cutting 3% from their budgets with an additional 2% reversion, both of which follow three previous years of trimming budgets 2% per annum, the task becomes ambiguous, potentially arbitrary, and perhaps impossible to carry out.

For several decades, researchers have documented the impact of above average levels of role conflict and role ambiguity on work-related stress, job satisfaction, effectiveness, and organizational commitment, especially for those individuals in middle management positions in professional organizations (Seeman, 1953; Evans, 1958; Kahn et al., 1964; Rizzo et al., 1970; Abdel-Halim, 1981a, 1981b; Bedeian & Armenakis, 1981; Fisher & Gitelson, 1983; Glick, Jenkins, & Gupta, 1986; Schaubroeck, Cotton, & Jennings, 1989; Assouline & Meir, 1987; Judge, Boudreau, & Bretz, 1994; Fried & Tiegs, 1995; Sarros, Gmelch, & Tanewski, 1996). Specifically, Kahn et al. (1964) found that the emotional costs of excessive role conflict include low job satisfaction, low commitment to the organization, and a high degree of job-related stress. Similarly, Schaubroeck et al. (1989) discovered through surveying blue- and white-collar workers in manufacturing plants and a large university that role conflict and role ambiguity impact job satisfaction. Others suggested that above normal levels of role conflict are associated with coping behaviors that prove dysfunctional for the organization because these mechanisms lead to significant decision-making difficulty and overall ineffectiveness (Seeman, 1953; Rizzo et al., 1970).

Early research specific to university administration indicated that role conflict problems permeate universities and that deans, especially, must weigh central administration expectations against those of college departments (Baldridge, 1971). There is also some evidence that institutional size and type can contribute to role conflict and role ambiguity. The larger the university and the more complex and competitive its environment, the greater the potential for role conflict and ambiguity (Ryan, 1980). For example, deans (and chairs) may want to continue their personal research and scholarly writing but find that time constraints make it either difficult or impossible to do.

Work conducted on department chairs suggests that married chairs and chairs who have children living at home experience higher levels of stress (Wolverton, Gmelch, Wolverton, & Sarros, in press). Subsequent findings contradicted the existence of a direct relationship between these two personal variables and stress levels. These findings led researchers to the conclusion that such variables may enter the stress model for chairs as well as deans indirectly through role conflict and role ambiguity, both of which directly impact stress (Sarros, Gmelch, & Tanewski, 1996; Wolverton, Wolverton, & Gmelch, 1998). There also appeared to be a possible significant relationship between stress and minority status of deans, again suggesting to researchers the need to test the relationship between this variable and role conflict and role ambiguity (Wolverton et al., 1998).

Research findings also indicate that although inordinate proportions of role conflict and role ambiguity are important aspects of stress, job satisfaction, and effectiveness, the effects may be tempered by certain other personal attributes, particularly age and job tenure or security (McLaughlin, Montgomery, & Malpass, 1975; Schuler, 1975; Howard, Cunningham, & Rechnitzer, 1978; Booth, 1982; Jackson & Schuler, 1985; Lee, 1985; Schaubroeck et al., 1989; Kelloway & Barling, 1991; Spector & Jex, 1991; Xie & Johns, 1995; Sarros et al., 1996). Some of the findings, however, contradict each other. For example, Schuler (1975) found that the more seniority an employee had, the more role ambiguity she or he experienced. Howard et al. (1978) discovered just the opposite.

Methodology

The study from which this article derives, examines the academic deanship as a multifaceted phenomenon. Its overall goal is to establish a baseline of information about deans in the United States. It was conducted by the Center for Academic Leadership at Washington State University.[1] The resulting data base includes deans' personal and institutional demographic specifics, their perceptions of role conflict and ambiguity, views of the responsibilities associated with the position, perceptions of job-related stress and the factors associated with it, and understanding of leadership.

Between October 1996 and January 1997, academic deans in the United States were mailed the *1996 National Survey of Academic Deans in Higher Education* (Gmelch, Wolverton, Wolverton, & Hermanson, 1996). The following criteria were used to construct the sample. Potential sample institutions came from one of the following three groupings of Carnegie classifications—Research I & II and Doctoral I & II; Masters I & II; or Baccalaureate I & II. In order to make comparisons of institutions across Carnegie classifications, researchers attempted to control for some of the differentiation that exists across categories. To do this, researchers limited the potential institutional population to those universities that had four colleges in common. From this initial group of colleges and universities, 60 public and 60 private institutions were randomly selected from each Carnegie category, resulting in a sample of 360 institutions. At each of the sample institutions, the deans of the colleges of education, business, liberal arts, and allied health professions were then asked to complete the survey. In a few instances, colleges of social work or a similar discipline were also included in the survey. Based on experiences gained in survey research done on department chairs where 10% of the sample were women, researchers made the assumption that a similar pattern would reveal itself in deans if a completely random sample were collected. As a consequence, in a purposeful attempt to increase the number of female respondents, researchers included colleges of nursing and public health. The overall sample size consisted of 1,370 deans, with a response rate of 60%. The survey packet included a cover letter and a business reply envelope. The major aspects of the Dillman (1978) *Total Design Method* were used in the design and distribution of the survey.

Research instruments used in the survey include the Dean's Stress Inventory (Gmelch et al., 1996), Role Conflict and Role Ambiguity Questionnaire (Rizzo et al., 1970), Dean's Task Inventory (Gmelch et al., 1996), Satisfaction with Dean's Role (Gmelch et al., 1996), Dean's

Leadership Inventory (Rosenbach & Sashkin, 1995) and demographic and contextual variables (Gmelch et al., 1996). Those instruments relevant to this article are highlighted below.

> Rizzo et al. (1970) 14-item Role Conflict and Ambiguity Questionnaire (RCAQ) was used in this study to determine the level of perceived role conflict and role ambiguity among deans. This instrument has been psychometrically verified across a broad range of studies (Schuler, Aldag, & Brief, 1977; Tracy & Johnson, 1981). More recent studies have validated both the stability and the reliability of the constructs (Kelloway & Barling, 1990; King & King, 1990; Netermeyer, Johnson, & Burton, 1990; Smith, Tisak, & Schmieder, 1993).
>
> Satisfaction with Dean's Role. Respondents were asked to rate their level of satisfaction with the clarity of the role, pace of work, work load, control of work environment, compensation package, and overall job satisfaction. Responses were on a five-point scale ranging from 1 for *dissatisfied* to 5 for *satisfied.*
>
> Demographic and contextual variables consisted of 18 personal background variables, 9 institutional background variables, and 4 additional items. The selection for survey inclusion of these variables was informed by the demographic segment of the *National Survey of Chairs* (Gmelch, Burns, Carroll, Harris, & Wentz, 1990; 1992). The personal variables relate to age, gender, marital status, ethnicity, years in position, previous position, years of administrative experience, nature of appointment, reasons for selection as dean, personal reasons for becoming dean, previous leadership roles, satisfaction with role, and future goals. Institutional items include type of institution, location, institutional climate (as a place to work, academic standing, quality of administration and instruction, salaries), and number of tenured, nontenured and adjunct staff. Additional information relates to networking arrangements with deans of other colleges, major challenges facing deans, and additional areas of interest or concern not covered directly in the questionnaire.
>
> Selected items related to overall work-related stress, organizational commitment, and perceptions of effectiveness were also used in this analysis.

Analysis

In order to recheck instrument reliability, principle component factor analysis using the *SPSS* statistical package (Norusis, 1994) was conducted on the 14 statements of the Role Conflict and Ambiguity Questionnaire. As expected, the first 8 statements loaded on the role conflict factor and the remaining statements loaded on the role ambiguity factor. The reliability coefficients for role conflict and role ambiguity were $\alpha = 0.83$ and $\alpha = 0.86$, respectively. Once these constructs were verified, simple regressions were run to determine the impact of role conflict and role ambiguity on job satisfaction, stress, effectiveness, and organizational commitment. Finally, we conducted means tests to determine the relationships among specific demographic variables and the role conflict and role ambiguity dimensions of the dean's position.

Profile of Deans in the Study

The responses received generated a relatively well-balanced sample in terms of both gender and institution type. Forty-one percent of the responding deans were women. Of the respondents, 58% worked in public institutions, 42% in private universities. One-third were deans in research universities (44% of this subgroup were female); 46% were at comprehensive universities (38% female); the remaining 21% were located at baccalaureate institutions (42% female). More than 40% worked at universities located in urban areas; about 30% were in rural institutions; the remainder classified their universities as suburban (see Table 1).

Roughly 12% of the respondents held minority status, with African-Americans comprising more than one-half of this segment of the sample. The minority-status pool was evenly divided along gender lines. Thirty-two percent of the minority respondents were deans at research universities; 42% were located at comprehensive universities; the remaining 26% worked at baccalaureate colleges.

Of the total responses, 29% of the deans worked in colleges or schools of education, 29% in liberal arts, 23% in nursing or public health, and 18% in business. Female deans made up 35% of the education dean respondents, 31% of those in liberal arts, 83% of the nursing and public health respondents, but only 9% of the business college deans. When only the women in the sample are considered, 48% of all female deans who responded were deans in nursing colleges; 25% were from education; 23% were from liberal arts; 4% served as deans of colleges of business.

College size varied. On average, 85 full-time faculty and 46 adjunct faculty served 1,700 undergraduate and 400 graduate-level students. About 60% of the faculty were tenured. Administratively, colleges operated with 7 department chairs and one or more associate deans.

Deans, on average, were 54 years old and had served in their current positions for 5.6 years. Fewer than 10% were under the age of 40 years; less than 5% were 65 years of age or older. Sixteen percent of the respondents had served in their positions for one year or less. Only 12.8% had been deans for more than 10 years. Eighty-two percent of them were married; the majority (52%) still had children living at home. About two-thirds of responding deans were dissatisfied with their current, personal research productivity. But, overwhelmingly, most (more than 90%) believed that universities are good places to work. Fifty-five percent had mentors. Most believed that they had been hired to bring about

TABLE 1
Descriptive Statistics

Variable	*N*	Mean	Standard Deviation	Minimum	Maximum
Personal					
Gender = male	780	0.59	0.49		
Married	778	0.82	0.39		
Age	770	53.9	6.2	31	76
No. of children at home	776	0.5	0.9	0	6
Ethnicity					
White	786	0.88	0.32		
African American	786	0.06	0.24		
Hispanic	786	0.03	0.17		
Asian American	786	0.02	0.14		
Native American	786	0.003	0.05		
Years as dean	786	5.6	4.5	0.16	27
Had a mentor	767	0.55	0.50		
Viewed self as					
faculty	771	0.07	0.26		
administrator	771	0.34	0.47		
both	771	0.59	0.49		
Satisfied with current scholarship	759	0.39	0.49		
Inside hire	778	0.57	0.50		
Reason for hire					
Deal with growth	775	0.20	0.40		
Facilitate change	775	0.34	0.47		
Deal with crisis	775	0.11	0.31		
Sustain programs	775	0.28	0.45		
Serve as interim	775	0.07	0.26		
Institutional					
Public institution	770	0.58	0.49		
Research/doctoral	764	0.33	0.47		
Comprehensive	764	0.46	0.50		
Baccalaureate	764	0.21	0.40		
College					
Education	769	0.29	0.45		
Liberal Arts	769	0.29	0.45		
Health related	769	0.23	0.42		
Business	769	0.18	0.38		
Good place to work	771	4.23	0.81	1	5
Location					
Urban	762	0.44	0.50		
Suburban	762	0.27	0.44		
Rural	762	0.29	0.45		
College size					
Undergraduate students	721	1,694	2,131	0	16,255
Graduate students	725	395	598	0	4,000
Full-time faculty	749	85	100	2	800
Adjunct faculty	741	46	71	0	800
Percent of tenured faculty	741	0.58	0.24	0	100
Chairs	753	7	7	0	42
Associate deans	756	1.2	1.5	0	13

NOTE: All means not listed ranged from 0 (minimum) to 1(maximum).

change (34%) or help the college deal with growth (20%). Eleven percent thought they had been chosen to deal with crisis; another 28% understood their role as sustaining current college programs. Only 7% believed they had been hired because they had been willing to serve as interim dean. Fifty-seven percent of all the respondents were inside appointments. The majority of responding deans (59%) viewed themselves as both being administrators and faculty. A smaller percentage (34%) categorized themselves as administrators; relatively few (7%) classified themselves solely as faculty.

Deans' Responses to the Role Conflict and Role Ambiguity Questionnaire

The deans' responses to each of the role conflict and role ambiguity statements indicate that they are clearest about what their responsibilities are ($\bar{x} = 5.51$ on a 7-point scale, where 1 signifies "not true of my job" and 7 suggests "extremely true of my job"). Again, they seem fairly certain about how much authority they have ($\bar{x} = 4.99$); they appear to know exactly what is expected of them ($\bar{x} = 4.67$); and "the explanation regarding what has to be done is clear" ($\bar{x} = 4.66$). When asked about areas where role conflict could occur, working with two or more groups that operate differently seemed to cause the most problems ($\bar{x} = 4.72$), followed by doing things that are apt to be accepted by one person and not accepted by others ($\bar{x} = 4.38$) and receiving assignments without the proper resources and materials to execute them ($\bar{x} = 4.15$) or without proper staffing ($\bar{x} = 4.14$) (see Table 2).

The Impact of Role Conflict and Role Ambiguity

Because research literature consistently suggests a direct relationship between role conflict and role ambiguity and overall job satisfaction, stress, effectiveness, and organizational commitment (Rizzo et al., 1970; Schaubroeck et al., 1989; Fried & Tiegs, 1995; Sarros et al., 1996), we chose to examine these same dimensions. The results of this portion of the analysis strongly reflect the findings of this research base, suggesting that the indicators used in the survey are accurate.

In this particular study, role conflict and role ambiguity were significant in explaining 22% of the variance in overall job satisfaction among responding deans. Specifically, as role conflict and role ambiguity decreased, job satisfaction increased. Role conflict and role ambiguity also were significant in accounting for 19% of the variance in overall stress levels experienced by respondents. In this instance, the greater the role conflict and role ambiguity, the greater the level of overall stress. Role ambiguity significantly affected the deans' perceptions of their effec-

TABLE 2

Role Conflict and Ambiguity Responses (descending order by mean response)

Variable	*N*	Mean	Standard Deviation
Role Conflict			
I work with two or more groups who operate quite differently	775	4.72	1.83
I do things that are apt to be accepted by one person and not accepted by others	774	4.38	1.92
I receive an assignment without the proper resources and materials to execute it	764	4.15	1.77
I receive an assignment without the proper staffing to complete it	775	4.14	1.80
I have to do things that should be done differently	772	4.05	1.57
I have to work on unnecessary things	778	3.97	1.62
I receive incompatible requests from two or more people	772	3.73	1.84
I have to buck a rule or policy in order to carry out an assignment	769	3.35	1.70
*Role Ambiguity**			
I know what my responsibilities are	779	5.51	1.29
I feel certain about how much authority I have	776	4.99	1.55
I know exactly what is expected of me	773	4.67	1.55
Explanation is clear regarding what has to be done	775	4.66	1.47
Clear planned goals exist for my job	777	4.38	1.61
I know that I have divided my time properly	775	4.36	1.45

NOTE: The Likert Scale used ranged from 1 (low) to 7 (high).
* These items were reverse scored in the regression analyses.

tiveness. About 7% of job effectiveness or ineffectiveness could be attributed to role ambiguity. In this case, the lower the level of role ambiguity, the greater the perception of effectiveness. Finally, both role conflict and role ambiguity significantly impacted organizational commitment. The less role conflict and role ambiguity, the greater the commitment to the organization (see Table 3).

Personal and Institutional Influences on Role Conflict

Somewhat surprisingly, respondents' perceptions of role conflict did not vary by gender or minority status. Role conflict did, however, vary significantly across subgroups defined by several institutional and personal variables (see Tables 4a and 4b).

For example, whereas deans from research universities dealt with what appears to be relatively normal levels of role conflict, their counterparts at both comprehensive and baccalaureate universities experienced significantly different levels of role conflict—more at comprehensive institutions and less at baccalaureate. By college type across all univer-

TABLE 3
Impact of Role Conflict and Ambiguity

Variable	*Job Satisfaction* Coefficient (t-statistic)	*Stress* Coefficient (t-statistic)	*Effectiveness* Coefficient (t-statistic)	*Commitment* Coefficient (t-statistic)
N	699	699	712	701
Constant	3.93*	3.11*	4.12*	4.12*
	(153.99)	(96.12)	(172.89)	(109.68)
Role conflict factor score	−0.22*	0.36*	−0.01	−0.14*
	(−8.80)	(10.98)	(−0.41)	(−3.78)
Role ambiguity factor score	−0.28*	0.22*	−0.17*	−0.28*
	(−11.13)	(6.84)	(−7.28)	(−7.44)
F-statistic	100.01*	83.07*	26.58*	34.71*
Adjusted R^2	0.22	0.19	0.07	0.09

* Indicates significance at the 0.01 level or better.

sities, both public and private, only deans in business colleges experienced any significantly higher levels of role conflict.

Deans at urban institutions seemed significantly more prone toward role conflict, while their counterparts in rural locations seemed less inclined toward above normal levels of conflict. The work environment, in general, seemed to impact role conflict levels. The better the work climate, the lower the role conflict. Most deans described their universities as good places to work, and this helped reduce role conflict.

Interestingly, the size of the college in terms of number of students served or the number of academic departments housed within the college did not affect the role conflict levels of deans. What did seem to matter, however, was the percentage of tenured faculty, the number of associate deans, and to a lesser extent the number of adjunct faculty in the college. If more than 60% of the faculty were tenured, role conflict increased. The same was true if deans worked with one or more full-time associate deans. Large numbers of adjunct faculty also seemed to contribute to role conflict.

In most instances, role conflict did not differ significantly by reason for being hired. However, deans primarily responsible for sustaining current programs seemed to experience significantly less role conflict. In instances where deans were hired to bring about change, significantly higher levels of role conflict were found, as expected (p-value = 0.057, one-tailed test). This finding is consistent with current research literature on facilitating change, which states that factions, some in favor of change and others resistant to it, will hold competing sets of expectations for the person charged with ensuring that the change takes place (OToole, 1995; Carr, Hard, & Trahant, 1996; Robbins & Finley, 1996).

TABLE 4A

Tests for Differences in Mean Role Conflict Factor Score

Personal Variable Set	Mean	*t*-statistic	*p*-value*
Male	0.033	0.89	0.371
Female	–0.035		
Minority	–0.142	1.29	0.199
Non-minority	0.014		
African American	–0.144	1.02	0.310
Non-minority	0.014		
Native American, Hispanic and Asian American	–0.140	0.86	0.391
Non-minority	0.014		
African American	–0.144	0.02	0.986
Native American, Hispanic and Asian American	–0.140		
Married	–0.011	0.33	0.739
Unmarried	0.021		
No children	–0.047	1.72	0.086
One child or more	0.091		
Single and no children	–0.011	0.58	0.560
Single with children	0.132		
Single with children	0.132	0.18	0.854
Married with children	0.088		
Less than 50 years of age	0.203	2.78	0.006
50 or older	–0.045		
Been a dean for less than 2 years	–0.165	2.09	0.037
Been a dean for 2 years or more	0.034		
View self as an administrator	0.036	0.70	0.485
View self as faculty or as faculty and administrator	–0.020		
View self as faculty	–0.213	1.65	0.099
View self as administrator or as faculty and administrator	0.017		
View self as faculty and administrator	0.007	0.23	0.816
View self as faculty or as administrator	–0.012		
View self as faculty	–0.213	1.71	0.088
View self as administrator	0.036		
Had a mentor	0.003	0.04	0.965
No mentor	0.007		
Satisfied with personal scholarship	–0.150	3.03	0.002
Not satisfied with personal scholarship	0.089		
Inside hire	–0.045	1.45	0.148
Outside hire	0.064		
Hired to deal with growth	0.018	0.30	0.767
Other reasons for hire	–0.010		
Hired to facilitate change	0.078	1.58	0.115
Other reasons for hire	–0.048		
Hired to deal with crisis	0.040	0.40	0.687
Other reasons for hire	–0.010		
Hired to sustain existing programs	–0.116	1.85	0.064
Other reasons for hire	0.039		
Hired because I was willing to serve as interim dean	–0.102	0.73	0.463
Other reasons for hire	0.004		

* Reported *p*-values assume a two-tailed test.

TABLE 4B

Tests for Differences in Mean Role Conflict Factor Score

Institutional Variable Set	Mean	*t*-statistic	*p*-value*
Public institution	0.032	1.02	0.310
Private institution	–0.046		
Research/doctoral institution	0.028	0.61	0.539
Other classifications	–0.022		
Comprehensive institution	0.081	2.16	0.031
Other classifications	–0.083		
Baccalaureate institution	–0.254	3.41	0.001
Other classifications	0.059		
College of Education	–0.096	1.51	0.132
All other colleges	0.029		
College of Business	0.163	2.14	0.033
All other colleges	–0.043		
College of Nursing	–0.093	1.23	0.220
All other colleges	0.018		
College of Liberal Arts	0.068	1.25	0.211
All other colleges	–0.037		
Good place to work	–0.018	3.16	0.005
Not a good place to work	0.591		
Urban location	0.091	2.14	0.033
Other location	–0.071		
Suburban location	–0.018	0.28	0.771
Other location	0.006		
Rural location	–0.123	1.95	0.052
Other location	0.049		
1,700 or > undergraduate students	0.048	0.83	0.409
< 1,700 undergraduate students	–0.023		
400 or > graduate students	0.038	0.67	0.501
< 400 graduate students	–0.020		
85 or > full-time faculty	–0.011	–0.12	.0904
< 85 full-time faculty	–0.001		
46 or > adjunct faculty	0.101	1.70	0.090
< 46 adjunct faculty	–0.040		
60% or > tenured faculty	0.034	2.18	0.035
< 60% tenured faculty	–0.293		
7 or > department chairs	0.027	0.54	0.592
< 7 department chairs	–0.016		
1 or > associate deans	0.075	2.60	0.010
< 1 associate dean	–0.124		

* Reported *p*-values assume a two-tailed test.

Role conflict differed across three personal variables and one dean's perception of self. If a dean had been in the position for more than two years, role conflict was greater. (Using 2 years as the cut point facilitates contrasting the least experienced quartile with the rest of the sample.) Although marital status did not seem to matter; if there were children still living at home, role conflict was moderately affected. In contrast, if a dean was under 50 years old, the increase in role conflict was highly significant. (Using age 50 years as the cut point allowed for comparison of the youngest quartile to the rest of the sample.) If a dean thought of him- or herself as a faculty member, he or she experienced less role conflict when compared to the remainder of the sample as well as when compared to the administrator subgroup. In addition, if deans were fairly satisfied with their personal level of scholarly productivity, they experienced less role conflict. However, it should be noted that only about one-third of the respondents were satisfied with this aspect of their professional lives.

Personal and Institutional Influences on Role Ambiguity

Role ambiguity differed little over most of the institutional variables (see Tables 5a and 5b). Whether the institution was public or private, research, comprehensive, or baccalaureate had little effect. However, deans who headed colleges of nursing experienced less role ambiguity than other deans, and the difference was highly significant. In contrast, deans of liberal arts colleges were subjected to significantly more role ambiguity. Likewise, reason for hiring, with one exception, was insignificant. Deans hired to deal with growth did encounter significantly lower levels of role ambiguity than did the rest of their colleagues. Deans who believed that their university's work climate was good, experienced significantly less role ambiguity.

Role ambiguity did not vary by gender status, but it did vary by minority status. Minority deans experienced significantly less role ambiguity. Though being married (in and of itself) had no impact, deans having children living at home did show higher levels of role ambiguity. The effect of having children still at home was even more significant for deans who were single. A statistical difference also existed when the group of deans who were married and had children at home were compared with the group who were single and had children at home. This latter group experienced significantly more role ambiguity.

Deans under 50 years old exhibited more role ambiguity. Deans with mentors fared much better than those without mentors. Role ambiguity differed significantly by how deans defined themselves in all cases. If deans thought of themselves as either faculty or as a combination of

TABLE 5A

Tests for Differences in Mean Role Ambiguity Factor Score

Personal Variable Set	Mean	*t*-statistic	*p*-value*
Male	0.041	1.19	0.235
Female	−0.051		
Minority	−0.285	2.66	0.008
Non-minority	0.037		
African American	−0.181	1.72	0.092
Non-minority	0.037		
Native American, Hispanic and Asian American	−0.421	2.55	0.011
Non-minority	0.037		
African American	−0.181	1.20	0.236
Native American, Hispanic and Asian American	−0.421		
Married	−0.016	0.64	0.524
Unmarried	0.046		
No children	−0.045	1.65	0.100
One child or more	0.088		
Single and no children	−0.016	2.52	0.012
Single with children	0.600		
Single with children	0.600	2.16	0.032
Married with children	0.047		
Less than 50 years of age	0.123	1.68	0.093
50 or older	−0.030		
Been a dean for less than 2 years	0.035	0.43	0.670
Been a dean for 2 years or more	−0.006		
View self as an administrator	−0.185	3.37	0.001
View self as faculty or as faculty and administrator	0.081		
View self as faculty	0.204	1.67	0.096
View self as administrator or as faculty and administrator	−0.027		
View self as faculty and administrator	0.060	2.18	0.030
View self as faculty or as administrator	−0.106		
View self as faculty	0.204	2.77	0.006
View self as administrator	−0.185		
Had a mentor	−0.080	2.14	0.032
No mentor	0.082		
Satisfied with personal scholarship	−0.204	4.32	0.000
Not satisfied with personal scholarship	0.121		
Inside hire	−0.036	0.93	0.355
Outside hire	0.034		
Hired to deal with growth	−0.165	2.24	0.025
Other reasons for hire	0.045		
Hired to facilitate change	−0.006	0.18	0.859
Other reasons for hire	0.008		
Hired to deal with crisis	0.123	1.10	0.272
Other reasons for hire	−0.011		
Hired to sustain existing programs	0.085	1.36	0.175
Other reasons for hire	−0.028		
Hired because I was willing to serve as interim dean	0.025	0.15	0.879
Other reasons for hire	0.003		

* Reported *p*-values assume a two-tailed test.

TABLE 5B

Tests for Differences in Mean Role Ambiguity Factor Score

Institutional Variable Set	Mean	*t*-statistic	*p*-value*
Public institution	0.003	0.26	0.793
Private institution	–0.017		
Research/doctoral institution	–0.071	1.18	0.239
Other classifications	0.024		
Comprehensive institution	0.026	0.85	0.395
Other classifications	–0.039		
Baccalaureate institution	0.008	0.22	0.823
Other classifications	–0.013		
College of Education	0.030	0.60	0.548
All other colleges	–0.020		
College of Business	–0.053	0.61	0.545
All other colleges	0.006		
College of Nursing	–0.192	2.67	0.008
All other colleges	0.048		
College of Liberal Arts	0.106	1.86	0.063
All other colleges	–0.049		
Good place to work	–0.038	4.27	0.000
Not a good place to work	1.09		
Urban location	–0.057	1.21	0.228
Other location	0.035		
Suburban location	0.037	0.68	0.498
Other location	–0.021		
Rural location	0.033	0.64	0.521
Other location	–0.021		
1,700 or > undergraduate students	0.054	0.93	0.352
< 1,700 undergraduate students	–0.024		
400 or > graduate students	–0.030	0.41	0.684
< 400 graduate students	0.003		
85 or > full-time faculty	–0.009	0.04	0.965
< 85 full-time faculty	–0.005		
46 or > adjunct faculty	–0.004	0.00	0.999
< 46 adjunct faculty	–0.004		
60% or > tenured faculty	–0.003	1.22	0.229
< 60% tenured faculty	–0.217		
7 or > department chairs	0.065	1.38	0.168
< 7 department chairs	–0.044		
1 or > associate deans	–0.055	1.42	0.155
< 1 associate dean	0.057		

* Reported *p*-values assume a two-tailed test.

faculty and administrator, they exhibited more role ambiguity. Only when deans viewed themselves solely as administrators did they experience less role ambiguity at highly significant levels, both when compared to all other deans and when compared with those who defined themselves as faculty only. Deans who were satisfied with their current level of personal scholarship also experienced significantly less role ambiguity.

Making Sense of Role Conflict and Role Ambiguity in the Academic Deanship

The analysis clearly shows that role conflict and role ambiguity significantly affect a dean's level of job satisfaction, work-related stress (explaining 22% of the variance in the first instance and 19% in the second) and to a lesser extent her or his perception of effectiveness and overall commitment or loyalty to the institution where she or he works. The interrelatedness of satisfaction, stress, effectiveness, commitment, conflict, and ambiguity cannot be denied. Much of what is left unexplained in job satisfaction by taking conflict and ambiguity into account can be explained by the other variables. Although these findings are important, the true relevance of this study may lie in its ability to identify specific personal and institutional variables that either compound or ameliorate role conflict and role ambiguity for deans.

Personal Influences

For instance, though researchers often point to gender as a source of difference in approaches to leadership, communication styles, and methods of decision making (Helgesen, 1995a, 1995b; Jamieson, 1995; Tannen, 1990, 1994; Tinley, 1994; Astin & Leland, 1991), responses from the deans we polled indicate no significant differences in the degree to which men and women experience role conflict and role ambiguity. Because our sample reflects a good gender mix (59% male, 41% female), this finding suggests that, when deans discover ways to cope with or lessen role conflict and role ambiguity, the methods may be similar for both men and women.

Interestingly, although gender-based differences did not exist, some variance related to minority-status did surface. Minority-status deans experienced significantly less role ambiguity. We split these deans into two groups—African American deans (roughly one-half of the responding minority dean sample) and other minority deans (a subset comprised of Hispanic, Native American, and Asian-American deans)—and compared each subgroup with non-minority deans. While significance levels varied, both subgroups experienced lower levels of role ambiguity than did non-minority deans (African-American deans, p-value = 0.092; other minority deans, p-value = 0.011) (see Table 5). When the two minority dean subsets (African-American and other minority) were compared, no significant difference was found. Two plausible reasons come to mind that could explain why minority status deans experience less role ambiguity—purpose and preparation. In the first instance, these deans may come into the job with a set agenda. They may have been hired to bring diversity to the college in terms of students, faculty, staff, and overall organizational climate. In the second, it is possible that these deans, like many women, tend to overprepare for the position to which they aspire. They become better at what they do than others so that they will be taken seriously. These findings seem to imply that we may be able to learn how to reduce or deal with role ambiguity by more closely examining the experiences of minority-status deans.

Another important study result revolves around the issue of marital status. Role conflict and role ambiguity did not vary by marital status. If, however, a dean (whether married or not) had children living at home, both role conflict and role ambiguity increased significantly. Single parents seemed especially at risk of experiencing greater role ambiguity. The implications here seem fairly straightforward. Deans with children living at home suffer divided loyalties, most likely brought on by one of the few factors over which they have little control—time. They simply cannot be in two places at once—at work, in a meeting, at home, at a school conference, at a high-school football game or soccer match, at a piano recital, or a spelling bee, or simply at home when a child comes through the door at the end of a busy school day eager to talk to Mom or Dad. The lessons to be learned are two-fold. First, prospective deans should be made aware of the difficulties they will face as they attempt to balance their personal and professional lives. Second, colleges and universities can take proactive stances that allow deans more flexibility in the way work gets done and the manner in which office hours are covered. They can also support deans with children at home by providing viable options for child care or child-care leave.

The fact that deans in this study under 50 years of age, in general, suffered more role conflict and role ambiguity than older deans implies that some amount of maturity and experience may equip deans to better cope with role ambiguity and conflict. It could also simply indicate that these deans are still getting acclimated to the notion of balancing administration and faculty expectations—of giving the proper weight to each group's concerns. Ironically though, deans who have served for two or more years encounter more role conflict. This prompts us to believe that deans and their colleges go through a honeymoon period, which appears to be over by year two, when vested interests among competing factions begin to assert themselves.

Whether deans consider themselves to be faculty, administrators, or a combination of the two reveals another telling bit of information. Clearly, those who describe themselves as both administrators and faculty are worse off than the other two groups. Although these deans do not exhibit any higher levels of role conflict, they do experience higher levels of role ambiguity. Trying to be all things to all people may compound role ambiguity for these deans. Those who view themselves as faculty experience less role conflict probably because they have a good sense of what they will and will not do. They do, however, experience more role ambiguity perhaps because some constituents do not agree with the dean's assessment of his or her role and, as a consequence, place demands on the dean that he or she finds unacceptable. In contrast, deans who see themselves as administrators experience normal levels of role conflict and far less role ambiguity. These deans may be more decisive and commanding or may simply be able to deal with ambiguity better than some of their counterparts. Unlike department chairs, who often look at their positions as temporary departures from their role as faculty, deans have made a conscious career move into administration. It is possible that these deans have discovered what sacrifices have to be made and are willing to make them. For instance, they may be unable to engage in scholarly work to the degree previously experienced and accept that as a condition of the deanship. This predisposition toward administration may also lessen ambiguity levels.

Finally, mentors seem to have a viable place in the work lives of deans. It appears that mentors can help new deans define their responsibilities, set priorities and goals, delineate how much authority they actually have, and manage time effectively, thereby reducing role ambiguity.

Institutional Influences

The degree to which deans across different institutional classifications experience role conflict may be indicative of the current state of affairs in these institutions. Deans at both research and baccalaureate universities appear not to encounter any higher levels of role conflict than do deans at other universities. In fact, deans at baccalaureate universities function with less role conflict, possibly because the mission of these institutions is clear and less complex—they are teaching institutions. Deans at comprehensive universities, however, experience much more role conflict. This may occur because these institutions occupy an uneasy middle ground. They are no longer purely teaching universities, and they are not doctoral degree granting institutions but may have aspirations to be such. Deans, as a consequence, may face faculty disposed toward teaching and at the same time central administrators focused on the potential fiscal resources and prestige that research can generate.

In a similar manner, business college deans may face conflicting demands—a faculty that prefers to function as they always have, an external constituency that demands more work-related course content and greater accountability, and students who want better and more convenient delivery systems. These deans may also experience higher levels of role conflict because they have more opportunities to engage in external consulting. To do so, adds another set of expectations, which are at odds with expectations imposed on them by both central administration and faculty. Likewise, the current debate that pits life-long learning advocates against work-skill proponents may help explain why deans of liberal arts colleges seem to experience more role ambiguity. They may not know exactly what is expected of them and their faculty and, as a consequence, may not be able to plan effectively. Additionally, moves toward skill-based curricula may create philosophical dilemmas for both deans and their faculties. In contrast, deans of health-related colleges appear to experience much less ambiguity than their counterparts, suggesting that they understand what is expected of them. Clearly delineated professional standards that college graduates must meet to become certified in their field of study may quell many of the questions that might otherwise arise concerning what is expected of a nursing college and its people. In addition, many of these deans are women, and though, in general, gender was not a deciding factor in determining role ambiguity levels, the combination of this particular field and gender could have some impact.

The final institutional factor worth noting is reason for hire. Deans were given the following choices and asked to select one:

- I was best suited to deal with growth of the college/university;
- I was best suited to facilitate change;
- I was best suited to deal with crisis (financial, academic, staff, or other) in the college;
- I understood the college's programs and was dedicated to sustaining them;
- I was willing to serve as interim dean.

Whether a dean had been willing to serve as interim or had been brought in to deal with crisis did not significantly impact role conflict or role ambiguity—perhaps because the former instance was deemed irrelevant and the latter clearly meant that there was only one course of action because the college's survival was threatened. The other three reasons for hire in some way defined the level of role conflict and role ambiguity that deans exhibited. Dealing with growth may have been less ambiguous because the college had an agreed upon agenda. Sustaining current programs could have brought less role conflict into the system for a similar reason—people were in agreement as to the college's direction. Bringing about change may have resulted in more role conflict, again for a related reason, people more than likely had differing agendas. Lack of proper resources also often serves as a compounding factor to change efforts.

Finally, college size in terms of numbers of students and full-time faculty does not seem important; nor does the number of departments within a college. What does seem crucial, however, is the percent of tenured faculty and the number of associate deans that serve the college. In the first instance, when the majority of faculty are tenured, this group as a whole may become more vocal and demanding and less willing to bow to the desires of central administration. This situation definitely puts deans in the middle between two battling giants, neither one eager, in most cases, to back down. In the second instance, it appears that interaction with direct subordinates, such as associate deans, raises the level of role conflict. This may stem from an inability or unwillingness on the part of deans to delegate responsibility effectively, or it may result because the parties involved have not developed their communication and interpersonal skills to the extent needed.

Implications

The good news is that most deans believe they work in good environments. The bad news is that this is not enough. In a dynamic environment, deans cannot escape role conflict and no job is ever so clear-cut that ambiguity does not creep in periodically. What deans and their institutions must do is gain an understanding of role conflict and ambiguity and take steps to minimize any negative impact either might have in work situations.

At the individual level, deans must learn to balance their professional and personal lives. This may be particularly true for deans with children living at home, where responsibilities and demands on time can be immediate. By the same token, they must also seek balance in their professional lives. Deans, for the most part, have built scholarly reputations. The demands of the deanship require that they undertake a conscious evaluation of their priorities. To this end, deans must come to grips with the realization that to be effective administrators means they must sacrifice precious research and writing time. That, indeed, if they want to remain active in their discipline, they must come to the deanship with a research agenda and a team of researchers that can shoulder some of the research load. In addition, if personal research is a priority, then a dean must be willing and able to block time in her or his weekly schedule for such endeavors. This is not an easy task, but it can be accomplished if the dean builds an administrative team that understands, supports, and itself enlists in such activities.

Likewise, early preparation may be key to understanding the expectations placed upon deans as they enter the position. The academy, especially business colleges, abound in opportunities for such preparation. For instance, learning solid managerial and interpersonal skills may go a long way toward eliminating the uneasy feeling of not knowing what is expected. Such training provides tools and strategies for getting a handle on the unknown and the ambiguous. Deans can continually upgrade and add to their ability to proactively cope by taking advantage of workshops, seminars, and courses that deal with conflict resolution, negotiation, planning, and communications, and by simply reading about options and discussing them with other deans.

Finally, going it alone makes the road a long one. Find a mentor; be a mentor. A mentor does not necessarily have to be another dean, although he or she could be. A mentor does not even have to reside within the academy. A mentor does need to be willing to serve as a sounding board and good listener. He or she does need to understand what it means to work with and through other people toward a goal greater than any individual could accomplish. And he or she does need to recognize the dilemmas deans face when trying to set priorities.

Universities too can help deans cope with role conflict and role ambiguity. Universities are notoriously vague about what it is they expect deans to do. They hire deans based on scholarly attributes and accomplishments and hope for administrative talent. Rarely do they set agendas, even initial ones, for new deans; instead, they let deans flounder around trying to determine in what direction their new charge should be headed. Universities could go a long way in easing role ambiguity, especially for new deans, by giving recently hired deans some preliminary, but distinct, indication of what should be accomplished within the first two to three years. Such an agenda would allow new deans to perform effectively much earlier in their careers and help prevent them from wasting precious time trying to figure out where to run, how fast to go, and what to expect at the end of the road when they get there. Unofficially, new hires often receive some sort of insight about the makeup of the college—its faculty, staff, students, and skeletons. If universities expect deans to be effective early in their tenure, they must also ensure that all newly hired deans receive such information.

As deans age and retire, we will see a new generation taking their place. These deans are likely to have children living at home. Even if the average age of deans does not vary, we cannot assume that future deans will live in "child-free" homes. Today, more professionals, especially women, start families at older ages. This means that they enter managerial positions, such as the deanship, with children still in need of child care and parental involvement. In addition, parents are living longer, and they potentially represent another care-related issue for prospective deans. Universities must take an active stance in helping deans and other professionals in their organizations balance their professional and private responsibilities. One way this might be done is by providing ancillary support services, such as day- and sick-care for children and perhaps elder care as well. Promoting the use of flex-time in administrative offices is another means of support.

In addition, universities may want to examine the role that adjunct faculty play in their colleges. It appears that an optimal number exists beyond which deans encounter significantly more role conflict. This is a problem not only for new deans but for experienced ones as well. It may be that when adjuncts number more than 50, they organize and become more outspoken about issues, such as work load, pay, and benefits. Similarly, universities may, for many of the same reasons, want to determine whether an optimal balance between tenured and nontenured faculty exists.

Finally, universities need to figure out who they are, what they are about, what they want to be, whom they want to serve, and be clear about it. This is particularly pertinent for comprehensive universities, because they live a kind of schizophrenic existence—mandated to be regional institutions that offer undergraduate and master's level education, aspiring, and sometimes being pressured, to raise to the rarified arena of research universities. Institutional mission no longer defines faculty or dean reality. Faculty do research but teach too heavy a load to be effective researchers. Deans face increased administrative pressure to raise college status but cannot because research productivity is too low.

In a similar vein, universities, as a whole, need to enter actively into the debate about what a quality education is. The public, business, and legislatures are all involved in such discussions. The only silent, or at least ineffectual, voice is that of higher education. If higher education does not have a say in determining the outcome of this debate, universities may find themselves little better than high-tech vocational schools busily imparting job skills in exchange for tuition dollars. Part of the identity crisis that liberal arts colleges suffer today stems directly from an inability to articulate clearly the merits of a broad-based education that focuses on exploring ideas and learning to think creatively as well as critically.

Closing Remarks

In a world where deans come and go on a fairly regular basis (Wyatt, 1994), role conflict and role ambiguity take their toll on job satisfaction, stress, effectiveness, and commitment. Universities and their deans can ill afford to ignore these effects. The results—high turnover, burnout, and low productivity—cost too much in terms of people, time, and money. If deans do, indeed, provide a critical link in the academic decision-making process; and if universities, indeed, need to find ways to stay at their peak, then understanding what brings about role conflict and role ambiguity and learning to minimize their effects seems like a good first step.

Notes

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Book Reviews

Education for Citizenship: Ideas and Innovations in Political Learning,
edited by Grant Reeher and Joseph Cammarano.
Lanham, MD: Rowman & Littlefield, 1997. 228+ pp. $65.00 ($24.95)

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Education for Citizenship is a provocative and thoroughly readable volume on a topic that should be of interest to anyone concerned with either higher education, democratic citizenship, or, most particularly, the link between the two. Indeed, the nexus of citizenship and education has concerned our most profound thinkers about democracy since Alexis de Toqueville and Thomas Jefferson. As the editors point out, this is certainly not the first work to fathom the link between higher education and citizenship. What distinguishes this book is the concentration on the *ways* in which students should learn rather than on *what* they should be learning. Among its focal questions is how can higher education "enhance citizenship, foster a sense of connectedness to a community stretching beyond the university, and ultimately support the practices, basic values, and institutions necessary for the democratic process"? (p. 3) This is indeed heady stuff and, as the editors remind us, would be a question quite familiar to ancient Greek philosophers. While discussion of such philosophical issues enriches this book, it is liberally leavened with immensely practical pedagogical strategies.

The foreword by Benjamin R. Barber does exactly what a foreword should do: it inspired me and left me with no doubt that I wanted very much to read the book. Barber eloquently convinces us that "the price of liberty is citizenship" (p. xii). He also strongly introduces the argument that civic learning, above all other learning, must be experiential as well as purely cognitive.

Each chapter author is a faculty member who describes in just the right amount of detail educational experiences in which he or she engages students in political learning. Together the authors represent a wide range of institutions of higher education. The editors and two contributors are affiliated with the Maxwell School of Citizenship and Public Affairs at Syracuse University.

In Chapter 1, Craig A. Rimmerman explores the advantages and disadvantages of building a community service requirement into an introductory course on the American political system. He cogently presents both sides of the intriguing theoretical question of whether course-based service-learning is, in general, a good idea. Although Rimmerman is far too realistic to consider service-learning a panacea, he does conclude that he would continue to build a community service requirement into his course in the future because his students convinced him that it afforded them invaluable learning experiences. A strong proponent of service-learning, Richard M. Battistoni, in Chapter 2, offers many examples of students' written reflections as a rich resource for understanding their perceptions of the connections between service and citizenship. Among the connections his students articulately discuss are: citizenship as better knowledge of the community of which the institution is a part; self in relationship with others; identity, diversity, and pluralistic citizenship; democratic citizenship and the classroom itself; and the practical skills of engaged citizenship.

The Urban Agenda Project, in which Otto Feinstein and James D. Chesney have engaged students at Wayne State University for over ten years, is the subject of Chapter 3. The civic literacy module they introduced into Political Science 101 in 1986 has three components, each of which complements the others: theory building for civic literacy (based on the premise that in order for students to develop civic literacy they must be able to develop their own theoretical model of politics and political power), the formulation of political strategies based on theoretical tools and the students' experience, and civic participation (the experiential component in which students take part in such activities as organizing voter registration campaigns).

Chapters 4 and 5, by William D. Coplin and Glen A. Halva-Neubauer, respectively, provide a wealth of specific and practical suggestions for the design of citizenship courses and public affairs internships. In his discussion of citizenship courses as life-changing experiences, Coplin encourages instructors to think strategically about the desired learning outcomes of their courses and offers techniques and underlying philosophy that he rightfully claims can be applied to courses at any level. Halva-Neubauer describes the mechanics of the state and local public affairs internship program at Furman University, appropriately emphasizing the internship seminar and reflection activities.

Yet another form of active learning is the subject of Chapter 6 by Joseph Cammarano and Linda L. Fowler: simulations. Again using both theoretical background and practical techniques, they discuss how simulations enable students to understand the process of public policy. Although simulations are demanding on instructors, the authors believe that "the academic benefits coupled with the empowering effects they have had on our students make simulations worth the extra work and risk" (p. 108).

In Chapter 7, Marc Lendler describes how he effectively used a series of campuswide speech rights debates at his college as the basis of a course on Free Speech in America. He demonstrates that campuses are indeed microcosms of society in which otherwise abstract principles can be understood in practice. In a similar vein, Daniel O'Connell, who is on the faculty of Palm Beach Community College and a board member of the National Issues Forum, tells us in Chapter 8 how to make use of public deliberation processes in the classroom and on campus. He posits that deliberative dialogue is at the center of citizen politics, that the ability to make sound political judgments requires effective political deliberation, and that it is the role of higher education to foster the development of deliberative skills in our students.

John F. Freie's Chapter 9 raises the challenging question of whether it is possible to teach democratic citizenship without democratizing our classes. He provides the philosophical basis and procedural details for designing courses based on individual learning contracts. Both are readily adaptable to courses in many disciplines. In the following chapter, Naeem Inayatullah takes courses based on individual learning outcomes several steps further. His course titled

Contemporary Issues in International Relations allows students to grapple with the tension between others' understanding and representation of our interests and our desire to claim and represent our interests as our own. In order to create a laboratory in which students can experience this dynamic tension that underlies representative democracy, Inayatullah presents no lectures nor structures any discussions; he sits on the table and asks students what they would like to talk about. As he states, "The participants experience all the problems, frustrations, and limits of democratic conversations, but nevertheless, the process infects them" (p. 186). It is an intriguing pedagogy.

Although far less shocking, Mark Rupert's Chapter 11 on citizenship education and cross-disciplinary team teaching contains much in the way of innovation related to the move away from the passive, lecture-based format typical of introductory survey courses at larger universities. Contrary to the way survey courses are usually organized, the small discussion sections in which students spend most of their time "were not merely the caboose on a lecture-driven-train, but were rather the motor of this course" (p. 191). This approach also abandons conventional exams entirely, relying instead on frequent writing assignments and innovative use of a course home page.

The final chapters offer numerous ways in which the Internet can be used to enhance the classroom and serve as a tool for student citizenship. In Chapter 12, William Ball illustrates how the Internet can encourage student participation in politics and clearly presents both students' satisfactions and frustrations from their on-line experiences. Kimberley P. Canfield presents very specific listserv, usenet, and World Wide Web resources for citizenship education and reaches conclusions similar to Ball's about the effectiveness of the Internet for this purpose: "positive but mixed" (p. 228).

All in all, this book serves as an excellent complement to the philosophical and theoretical works it references on both civic education and pedagogy and learning styles. It relates clearly to the classic works of Aristotle, Plato, Jefferson, and John Dewey as well as to the contemporary work of Benjamin Barber, Harry Boyte and his colleagues, Robert Bellah et al., and Suzanne Morse. In the area of pedagogy and learning styles, it relates well to the work of Patricia Cross, David Kolb, and Malcolm Knowles, to name only authors cited. It is also a terrific companion to the second volume in the AAHE Series on Service-Learning in the Disciplines, Experiencing Citizenship: Concepts and Models for Service-Learning in Political Science (Battistoni & Hudson, 1997).

The scope of the audience that stands to benefit from *Education for Citizenship* is quite a bit broader than one would initially anticipate. While it most squarely suits higher education faculty who teach undergraduate courses in political science and American government, it also has much to say to K-12 educators as well as to college faculty in other disciplines who are interested in innovative teaching, as we all should be. I even highlighted several techniques that I plan to adapt for use in my honors intermediate French course that deals with contemporary social issues. There is much here of interest to non-faculty advocates for civic education and active learning, including administrators, student leaders, and political leaders outside of higher education.

I found the entire work to be well written and tightly edited. This, coupled with its rich and stimulating content, made it enjoyable and worthy of my highest recommendation.

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Antifeminism in the Academy, edited by Vèvè Clark, Shirley Nelson Garner, Margaret Higonnet, and Ketu H. Katrak.
New York: Routledge, 1996. 228 pp. $17.99

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> *Silence has never brought us anything of worth.*

Audre Lorde's words speak to the purposes of this text: "To recognize antifeminist intellectual harassment when we encounter it, to name it, and to work on behalf of change" (p. 202). *Antifeminism in the Academy* is a vigorous, animated, and effective response to right-wing assaults on campus feminists and women's studies. The contributing scholars offer an ambitious challenge by attending to three related areas: history of feminist activisms, campus politics, and academic sites of power. In so doing, they foreground their descriptions of the status of academic women within the larger political context of the civil rights movements and student activism of the 1960s and 1970s as well as position their writing as a form of resistance to assaults on feminism within the women's movement today.

The book offers a concise summary of changing cultures of higher education and the intellectual, political, and ideological shifts of the last four decades. This is well illustrated by Professor of Law Patricia Williams's argument that the politics of hate is the real crisis facing our campuses and that in order not to give up the hard-won gains [toward equity] of the last forty years, it is necessary to relegitimize the national conversation of racial, ethnic, and gender tensions. Williams also powerfully develops the position that those involved in antifeminist harassment tend to use free speech as a misnomer for a right that was not accorded equally to African Americans, Native Americans, or women at the time of the signing of the Constitution. She concludes "that there is no place where the battle over free speech has been more visible than in universities. . . . It is a battle marred by the persistence of prejudice: as women are still trying to overcome presumptions that they really *like* getting fondled in the back office [and] blacks are trying to overcome presumptions that they really *deserve* to be on the bottom of the heap. It is a battle marred by ignorance and denial" (p. 72). Moira Ferguson, Ketu H. Katrak, and Valerie Miner, in their chapter, retrace feminist activisms from the 1960s to the current backlash and hostility that is often shaped by media promoted by right-wing standard bearers and their sympathizers. Their description of the debates and positions within the academy and journals of the conservative National Association of Scholars and the liberal Teachers for a Democratic Culture provides thoughtful insights into the current cultural wars manifested in curriculum and faculty personnel decisions.

Another major contribution of the book is the authors' naming and defining of terms that facilitate a discourse about academic freedom as well as contribute to reifying women's rightful place in the academy. Annette Kolodny, professor and former dean of the College of Humanities of the University of Arizona, provides an important cryptograph for antifeminist harassment:

> It occurs . . . when (1) any policy, action, statement, and/or behavior has the effect of discouraging or preventing women's freedom of lawful action, freedom of thought, and freedom of expression; (2) or when any policy, action, statement, and/or behavior creates an environment in which the appropriate application of feminist theories or methodologies to research, scholarship, and teaching is devalued, discouraged, or altogether thwarted; (3) or when any policy, action, statement, and/or behavior creates an environment in which research, scholarship, and teaching pertaining to women, gender, or gender inequities are devalued, discouraged, or altogether thwarted. (p. 9)

Kolodny goes beyond the act of naming, to advocate ways to educate the campus and local community to recognize antifeminist harassment and to condemn it. Similarly, Ferguson, Katrak, and Miner introduce the idea of gender insiders—antifeminist feminists who ridicule and devalue feminism and feminists. Writing about feminist backlash as part of the culture wars within the national context, the authors describe how these gender insiders are being given increasing attention by mainstream media and how negative messages against women and minorities enter both private and public spheres. Mary Wilson Carpenter adds to the lexicon *sexagism*—the intersection of ageism and sexism that is linked to perceptions of the female body that forms the basis of antifeminism experienced by adult women students and, often in more subtle forms, against faculty women at midlife. Diane Bauer and Katherine Rhoades make important contributions to the antifeminist harassment template by describing students' active resistance to feminism in the classroom. Drawing upon personal narratives, student evaluations of faculty, and classroom research, Bauer and Rhoades describe the considerable backlash against feminist pedagogy and feminists in the classroom.

Greta Gaard's carefully documented writing on antilesbian harassment cogently explains how cultural heterosexism—the way heterosexual power and privilege are institutionalized, permeates the academy. By silencing personal authenticity, classroom and research topics, and publishing, antilesbian harassment is likely to be the most underreported form of discrimination. It is often difficult to distinguish antilesbian harassment from more general harassment against women, because attacks against lesbians range from exclusively antiwomen to exclusively antigay. Moreover, the individual subjected to antilesbian harassment may increase her risk of discrimination and victimization in self-identifying as a lesbian.

Elaine Ginsberg and Sara Lennox elaborate upon feminist and antifeminist ideologies in publishing by bringing forward the "best sellers" from both the feminist and antifeminist camps. Also, they craft an insightful analysis of publication outlets for feminist writing. Their paradoxical description of the large market for feminist books and the reticence of traditional journals to publish feminist scholarship corroborates the dilemmas of feminist scholars seeking tenure and promotion in research universities.

In Shirley Nelson Garner's writing on transforming antifeminism in the academy, her world and her subject converge as she draws upon her personal experiences, events at the University of Minnesota, and the antecedent portions of the book to develop an agenda for change. Emphasizing the importance of administrative and faculty understanding and cooperation, she provides exemplars of individual action and informal and formal alliances for change. In short, she calls upon readers to be active and engaged citizens in order to improve our academy:

> We need to think not whether it will be possible for us to serve, but when and how we can best do that. Not all of us have the skill or desire to be a college or university president. But all of us can assume active membership on important committees, chair committees, or take responsibility for writing policies. (p. 209)

The genre of the book reflects the disciplinary identity of the writers. Most of the scholars contributing to the book were associated with the Committee on the Status of Women in the Profession (CSWP) of the Modern Language Association (MLA) between 1988 and 1994. It is therefore not surprising that ten of the fourteen writers have vantage points from English or interdisciplinary departments. The consequence, however, is a volume of well-written and carefully researched essays on antifeminist intellectual harassment principally about faculty and curriculum in research universities. Thus, minimal attention is devoted to issues facing women staff members and students. Similarly, the experiences and examples, in the main, key on white women from middle-class backgrounds and tend to neglect the intersection of gender, class, and race.

Like feminism, this book is not univocal. Therefore, some chapters lack consistency in the treatment of topics; despite a superb introduction to the book, collectively the chapters are somewhat disconnected. These shortcomings, however, are more than offset by the richness and authenticity of the multiple voices and locations of the writers and their skillfulness in interweaving personal experiences with those of their colleagues.

Antifeminism in the Academy is a useful resource for department chairs and other academic administrators to increase their awareness of the subtle and not so subtle ideological, gender, and sexual differences within academic life. It also is a primer that offers strategies for a more sensitive and tolerant organizational environment and, therefore, a more fertile intellectual soil for all participants. At the same time, it is a reaffirmation for feminists that they are not alone and that there are ways to assist in "breaking the silence."

Daniel J. Julius
J. Victor Baldridge
Jeffrey Pfeffer

A Memo from Machiavelli

TO: Presidents, Senior Administrators, and Faculty Leaders Who Would Seek Change
FROM: Niccolo Machiavelli, Former Assistant to Presidents, University of the Medici

Permit me to take a brief moment of your valuable time to introduce myself. I served for years as special assistant to kings, dukes, generals, several popes and, as well, numerous presidents, senior executives and faculty at the University of the Medici. I have significant domestic and international experience—for in this capacity I have also worked with governors, state and national legislators, wealthy donors, foundations, public relations firms, religious societies, city and county officials, law enforcement agencies, and community activists. I have also coordinated activities with ministers of education throughout Europe.

I had the distinct pleasure of hearing your recent address to the Faculty Senate. You spoke of a bold tomorrow, the need for change in your institution, including the manner in which work is accomplished and evaluated. You discussed technology, distance learning, diversity, student services, the need for alternative criteria to evaluate faculty, new relationships with unions, funding, and student and alumni constituencies. You discussed how the role of the university, with the state, the city, and the federal government will change. You cited emerging relationships

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with the business community and argued persuasively, in my opinion, that unless the academic establishment begins to refocus its priorities, the university, as it once existed, will lose the autonomy and freedom to offer sound educational programs.

I am in no position to quarrel with your premises. (I am unemployed at the moment.) I was impressed with your grasp of fundamental issues facing higher education. I am, however, curious as to how you will implement these new ideas. Because I have advised over one hundred senior executives and faculty on change and implementation strategies, I thought you might appreciate my observations. My comments are based on real experiences. They are offered to you as a gift, yours to keep or discard at your pleasure.

Parenthetically, I do not mean to be presumptuous or overbearing in this letter. University executives and faculty leaders are (on occasion) startled at my directness and characterization of the uses of power and influence. I understand you are a gifted individual and would not hold your position and title unless you possessed exemplary traits. Like most intelligent people with whom I have worked, they appreciate candor. (Please ignore my biases though!) I do not want to sound as though I were sending you into an armed battle. Neither should we pretend, if you are serious about your ideals and goals, that people will simply adopt "your" new vision.

Decision Processes in Professional Organizations: Contemporary Realities

The key to being effective and the ability to make change begins first with an accurate assessment of the type of organization in which you work. Secondly, you must appreciate how decisions are made and who, if anyone, implements them.

Universities and colleges have a number of unique characteristics. Fundamentally, they are people-processing organizations, and, in order to handle that complex and delicate task, they usually have large staffs of highly trained professionals. Because people cannot be divided into segmentalized tasks in the same way that physical products can, professionals with a high level of expertise are needed to deal holistically with clients' needs. Thus it is that the first characteristic of academic organizations is that they are highly professionalized, client-serving systems.

Second, "people-processing" organizations have extremely ambiguous goals, and a list of legitimate activities for a university is extremely long. Because goals are often unclear, almost any activity that serves a "client" may be considered legitimate. Though many activities can be considered legitimate, many are also questioned. This is important for understanding change processes. If a college or university does not know its specific objectives, then an individual with an idea (and the energy) can often bend the institution in his direction. Ambiguity and contest over goals pave the way for the skillful politician,

Finally, colleges and universities are extremely vulnerable to outside pressures. Because the clients themselves—students—are relatively powerless, society generally demands accountability from the organization. As a consequence, outsiders demand the right to influence internal decisions. Be assured, however, that the public's success varies considerably: in school systems outside voices are often influential; in hospitals or legal firms, the organization has generally listened with deaf ears.

Characteristics of the Decision-Making Process

You operate in an unusual kind of organization. It is one that serves clients, has a highly professionalized staff, has unclear and contested goals, and is subject to much external pressure. The decision-making process can be characterized by the following:

Decision is by committee. Because expertise, not hierarchical office, is the organizing principle, then committees of experts decide many of the critical issues.

Fluid participation. Many of the decision makers are amateurs, engaged in pursuing their professions, not in making decisions. As a consequence, they wander in and out of the decision process, and power belongs to those who stay long enough to exercise it.

An issue carousel. Issues have a way of always coming around again. Decisions do not last long because pressure from outside groups, from clients, and from other professionals push the same or similar issues full circle. Decisions are not made as much as they are pinned down temporarily.

A "subsidiary" process. The longer it takes to make a decision, the greater the number of issues that are piled onto the original subject. People, hoping to accomplish several things at one time, burden simple decisions with countless subsidiary ones.

Conflict is common. Professional groups, clients, and outsiders support divergent interests in setting the ambiguous goals of academic organizations. As a consequence, conflict over goals is common as decision makers cope with the pressures from diverse interest groups.

How can I summarize? The image that captures the spirit of the decision process in an academic organization does not resemble a normal bureaucracy; nor does it look like the "community of peers" that is often associated with the medieval guild. Several images capture the spirit of the decision-making process. First, the structure of the organization is fluid, can be challenged and is highly political. Second, the decision-making process reflects competing groups and who often conflict. Finally, the unsettled character of the decision-making process can be captured by using the term *decision flowing* instead of decision making. Decision making has a finality to it; decision flowing sounds like a never-ending process that must be continued in order to make outcomes really work.

Change and the Ability to Make It

In the academic organization, seeking change, or accommodation to new trends, ideas, contexts, political or fiscal realities, is not for the faint-hearted. This is so particularly in your school. At least in your case, you will have some formal authority over internal constituents—but it is not formal authority in the real sense. As one ascends the organizational hierarchy in academic organizations, one has less and less real authority over anyone needed to get the job accomplished. Put another way, if you ever have to "invoke" your authority, you have, in effect, lost it. Success depends on managerial savvy coupled with moral and political persuasiveness.

Most in higher education believe "change" is laudable, but it remains difficult to manage. Said another way, we are busy reacting to change instead of being proactive. We even ask our search consultants to bring us candidates who can implement "change." In my experience, however, our colleagues in academe do not readily adopt new definitions of what is or is not important, or how work is accomplished or evaluated. (I suspect this may be attributable to the notion that professionals believe that what is good for them is also good for the student.) Everyone will sign on to the platitudes—the real work remains in the details of implementation: persuading; cajoling and, in reality, making it impossible for others not to follow you; exercising power and influence in non-hierarchical and informal settings. Implementation is the realm where the truly successful and effective administrators flourish.

The truth of the matter is that anyone who seeks to transcend the status quo will be met with opposition. Those who can neutralize or overcome opposing constituencies (or individuals) will succeed. Most senior executives and faculty, however, cannot and, for that reason, do not succeed in changing the organization in a positive way (and so they relegate their efforts around the margins of the institution, ignoring or shying away from the difficult structural issues). Of course the worst case scenario results when change is effectuated without accommodating careers and egos of others. There are numerous examples of "negative" or destructive changes.

Rules and Tactics for the "Change-Oriented"

Rule No. 1: Integrity, Wisdom, Selflessness

A new vision cannot be successfully implemented unless the individual (you) motivating others to change is perceived to have the highest of values; e.g., integrity, sensitivity, selflessness, striving for the good of the organization. Creative organizational evolution will not occur unless your constituency perceives you to be sincere, honest, fair; one who understands the university, scholarship and, as well, the role of other core constituents.[1] The one absolute I can offer is this: if the perception exists that you do not have integrity, wisdom, or selflessness, or if this issue is effectively presented or manipulated in a negative way by an opposing constituency, you will lose your influence and ability to manage change in the organization. There are presidents, for example, who are president in title only. This is fine as long as the organizational goal does not entail implementation of a new vision. Within the context of this first rule, I would offer a word about your personal relationships and the importance of managing external constituencies.

Personal Relationships

Protect those individuals and allies who risk their professional standing and administrative careers for you. Many good efforts flounder because senior executives or faculty (who desire institutional transition and convince others to implement it) do not support these individuals when conflict emerges. If those who articulated change (on your behalf) are abandoned, few will trust you again. Professional administrators and colleagues are a pretty smart lot. They can make or break you! You must guard those individuals (and honor formal lines of authority; e.g., those who report to them). Reward the constituents who give you their support. However, while engaging in this action be very wary of your "open door" policy! Few messengers are without a personal agenda. Reward those who are. Never expel the messenger though! Utilize their services wisely. Cultivate informal channels of communication without undermining the reporting or political relationships of others. Moderate your "reaction" to information gained through informal networks. If those around you feel you overreact to "negative" information, they will funnel only "good" news and, like most leaders who encourage or tolerate only good news, your authority and influence will eventually fracture and vanish, probably while you are busily engaged in what you consider important (and others consider trivial); e.g. designing the alumni magazine or visiting facilities off-site.

External Constituencies

As I noted earlier, colleges and universities usually have strong external constituents who apply pressure to the decision-making process. The wise strategist uses support from these external constituencies to influence the internal process. In building coalitions, it is useful to associate with outside groups as well as inside groups, particularly because major decision makers themselves are often tied to outside groups. Insiders, with their limited view of the outsiders' role, naively overlook the political strategy of cultivating external allies. Legislators, trustees, parents, alumni, and foundations can help change universities. The potential power of external constituencies must never be neglected.

Rule No. 2: Build A Team

You will need one. In this respect do not underestimate the value of loyalty as well as competency. New appointments will be important ones, particularly senior nonacademic appointments. Nonacademic administrators are crucial, because without them you cannot maintain your influence and run the institution effectively. Some academic types do not understand this. However, loss of confidence in your regime will come when your primary constituents (faculty, trustees, students, the public, academic administrators) feel they (a) cannot trust university data; (b) think that student services or student-related issues are out of control; (c) perceive that a crisis (usually fiscal) exists on campus with personnel, auxiliary services, etc.; (d) believe "funding" or "political" problems exist; (e) suspect that some senior advisors are out of control or incompetent.

Your agenda cannot be accomplished in the academic division alone. Good politicians know that much of their job is not influencing decisions as much as it is building a political base for influencing decisions. This means that a dedicated cadre of change agents must be formed, a committed group that exchanges ideas and reinforces each other's efforts. In addition, a strong change group needs equally strong links to those in viable political coalitions. In this respect, I should discuss the mechanics of building a team. This may entail making new appointments. Here is where many inexperienced administrators and faculty make fatal mistakes!

I advise that you break out of traditional recruitment and appointment processes. Be wary of a search committee's propensity to find the right people. Search committees often recommend those who are acceptable to the group (or those who may offend the fewest)! Assembling a team requires you to resist strong pressures to appoint "traditional" individuals. Traditionalists are not often comfortable with nor do they usually understand how to manage "change" or "conflict." Go outside of the traditional realm. The appointment of excellent and supportive academic administrators will be a task to which you should devote attention. Do not assume a search committee will simply do what you ask. Check the details of "who" serves on the committee, the charge of the committee, read the position description before the position is advertised. I would offer a word here about the concept of accountability.

Accountability

You must demand it. Unless there are consequences for "behavior" you cannot realize your objectives. Many in academe are not held accountable because much of what we do is not readily measurable (so it is difficult to determine success or failure!). People who care more about popularity than being strong managers (or effectuating change) do not hold others accountable. (I have rarely witnessed a situation where a well-liked individual could (a) remain on excellent terms with faculty and staff and (b) initiate change in the school, division or college.) Nor can you succeed with administrators who are vindictive, territorial, jealous, too lax (classic symptoms of "powerlessness"), or those who sanction inappropriate behavior, for example, when the "wrong" people are promoted. Unfortunately, many in academe often do a less than stellar job of evaluating managerial and academic effectiveness. It is not realistic to believe that senior faculty or administrators can be held accountable in an environment where there is little or no agreement on performance objectives. Appoint self-motivated people, set goals, ask for benchmark measures of success, demand more than "acquiescence."

In summary, your senior team must be provided with a positive emotional atmosphere: reward and encourage them in visible and immediate ways, express confidence, let them do their jobs, promote independence, initiative, and responsibility.

Rule No. 3: Concentrate Your Efforts

A basic mistake made by people interested in change is that they frequently squander their efforts by chasing too many rainbows. An effective political change agent, realizing that change is really difficult, concentrates efforts on only the important issues. Remember that in academe, most people do not care about all the issues. If you care enough to concentrate, you have enormous power to be effective. The frustration caused by the resistance offered by an immovable system is usually the result of scattered and dispersed efforts. Remember, if "fluid participation" is the rule, then most people wander in and out of the issue. If you stick with one or two critical issues, you are more likely to be effective. Make a list of priorities. Select the top three or four. Force yourself to ask the following questions in regard to these priorities:

- Who else is or will be influential as you endeavor to accomplish this priority?
- Whose cooperation and support will be needed?
- Whose opposition could delay or derail this action?
- In regard to those whose support is necessary or those who will oppose you, analyze:
    - What are the sources of their influence and authority?
    - Who will be more influential in the decision-making process?
    - Under what circumstances will (the) opposition coalesce?
    - Who will be affected by what you are trying to accomplish; e.g., effect on "their" power or status?
- Ask which strategies and tactics will be the most appropriate given faculty and administrative support (or opposition) for the idea or action.
- Ask who will determine success or failure.

In this context, may I offer advice on the notion of timing?

Timing

You must get a core constituency to (a) agree upon priority objectives early in the game and (b) agree on measurable criteria for success. Following this you should ensure that (someone) evaluates the effectiveness of actions against these measures. The sooner the process starts, the better. Academic organizations are tolerant of new presidents for short periods of time. They are, in a real sense, skeptical of anyone in a position of authority. The honeymoon will end quickly. Afterwards, a bureaucracy (and your opponents) can destroy creativity. Do not, however, take on the whole community at once! Choose your priorities (your allies and your adversaries) carefully.

Remember also, after one year, your predecessor's problems (largely through "nonaction") become your problems. Be a visionary and a missionary to constituents who object to your goals or who have power to block new initiatives. Understand where those constituencies derive their status and support.

Rule No. 4: Know When to Engage Conflict

To concentrate is to choose a few issues, and a tactical genius knows which ones to choose. Most of the time, it makes sense to support issues when you know you can be effective. If it is obvious that you will lose, wait. Remember, with the "issue carousel," the situation will probably return, allowing you time to master your resources for the next battle. There are exceptions to the "fight to win" rule. Sometimes it is wise to engage confrontation because the moral issue is great, or because it is possible to make future martyrs. We do not always fight to win today; sometimes we fight today so that we can win tomorrow. Most of the time, however, the rule is to choose issues with high payoff.

The sophisticated and astute observer can usually tell the difference between who is effective and who is not. A word here about conflict in the academic environment. Don't avoid it, manage it. Many presidents and senior executives fail to grasp this. Redirecting the priorities, possibilities and, if you will, the mission of a university requires organizational tension. Very simply put, you must convince your core constituencies to support (and buy into) new ways of conceiving and evaluating work and, perhaps, new educational or process outcomes, e.g., new relationships with unions or other core constituencies. This will require those who are "secure" with the current mission or comfortable with present priorities and outcomes, to change. Change can evolve peacefully to be sure. However, when it is necessary to "redirect" institutional priorities, change is more often associated with conflict primarily because folks have a vested interest in the way work is accomplished now.

Remember that your institution is a place wedded to its "traditions." This cultural trait will manifest itself, cloaked in the argument that "we never did it that way here" or, those who oppose you will hear in your words, "he (or she) doesn't value my (our) work." Managing this kind of conflict successfully requires that you:

- Encourage opposing constituencies to choose a course of action early in the game.
- Offer real alternatives for those who oppose you.
- Advance the notion of "mutual interests" rather than focusing on the positions of those who disagree.
- Act decisively, act soon, act in a determined manner.
- If you feel senior administrators will not be supportive, find another

place for them soon. You are probably not going to win them over and you will not succeed as long as they hold their positions.

- Have a strategic plan, stay to it. Pay attention to detail. Develop measurable criteria for success. Remember that most academic folks are trained to make a critical analysis but are not trained to implement decisions. People need guidance and supervision.
- You must love the academic soul. But remember, faculty, as a group, will complain. Offer them some cheese with their whine.
- Find the right incentives. Do not assume others will follow you simply because you are right. People will embrace your vision when your ideas provide them with (intrinsic/extrinsic) rewards.
- How you go about managing conflicting interests and personalities may be almost as important as what you actually do. Be very humane and civil.
- Once a constituency (or an individual) is neutralized or won over, allow for face saving, but do not be obsequious to those who opposed you.
- Declare your program a success; find small successes to celebrate along the way.
- Utilize (rely) on external pressures to encourage internal change. Redirect and manage those pressures. Force convergence of internal and external policy.
- Be wary of showing weakness. Do not readily admit you do not know something. Few are sanguine about following a person who has never "been there" before.
- Colleges and universities are organizations with low tolerance for conflict. Use this resource wisely.

Rule No. 5: Learn the History

Every issue has roots deep in the past. The issue carousel has trotted it past several times before. Consequently, the wise tactician searches for the historical bases of an issue. When was it around before? Who took what position? Who won? Who lost? Knowing the history can reveal what coalitions fight together and what tactics prove useful—information that helps in planning strategy. Under most circumstances, the person who is historically naive about the issue is not effective.

A word here about two issues related to "history." The first concerns the use of data and research and the second involves policy convergence.

Data/Research

Many ideas go awry because the data and/or research underpinning these issues can be criticized or, worse, is faulty. Just as there is nothing so good as good theory, there is no substitute for well-conceived and adequately presented institutional research. Be sure your opinions and ideas are based on solid assumptions and that they are defensible. Once anyone demolishes the basis of your (informational or research) objectives, you will lose your influence. In the academic milieu, if people cannot trust your data, they will not trust you.

Policy Convergence

Unless institutional policies and procedures reflect new visions and priorities, you cannot succeed. Policies and procedures form the basis upon which others act and, through implementation of policy, how others are evaluated. Once you articulate a new direction, institutional policies must conform to them. A "vision" cannot overcome policy which in itself may serve as a disincentive. Take the example of "fiscal prudence." A seemingly harmless policy that requires returning unused funds to a central account, may undermine this idea. Policies such as these sometimes work as an incentive for an administrator or faculty member to spend funds unwisely or "hide" accounts in an effort to circumvent the policy. (Of course, those who hide moneys will do so for the best of academic reasons!)

The policy criteria upon which people are evaluated will determine, to a large extent, their behavior and priorities. For example, you must endeavor to modify standards for promotion and tenure if you want to redirect the academic priorities of faculty. (No mean feat!) Making even small changes in this realm will require agreement and assistance of deans and department chairpersons. Redirection will come, ultimately, only if new criteria are related to outcomes that the "academic establishment" can support. In this respect, new priorities can be engineered if they are not seen as "imposed" but come as a product of mutual agreement. I am not suggesting this be done in all disciplines, but it must be attempted for some, as I understood your goals.

Rule No. 6: Strategic Planning

Your goals cannot be realized without a strategic plan. Everyone knows this. However, what many do not do is demand answers to the "right questions" in the plan. Review key priorities and concomitant strategic planning issues with your senior team. Next, force the team to address the following:

- Have you defined short-term and long-term objectives?
- Is a strategy adequately developed?

  Identify the key assumptions underlying your strategy. What evidence are you relying on to ensure assumptions are valid?
  Is the action plan feasible given the constraints and opportunities inherent in the situation?
  Is the action plan realistic given your sources of power?
- Has the impact of the action plan been assessed? (Is the plan ethical, will it benefit the institution?)
  Are you cognizant of trade-offs, or who will be directly and indirectly affected by your plan?
  Were the risks of the plan analyzed?
- Were all contingencies planned for?
- Are mechanisms in place to ensure the plan is periodically evaluated?
  Can the plan be modified?
- Have you assessed the timing and sequence of decisions?
  Differentiate between urgent and less important matters.
  Does the plan contain incremental steps?
  Do early steps preclude future alternatives?
- Will you be able to reflect on and communicate successes or failures with overarching plan objectives?

I have known of administrators who manage the development of elaborate plans (or "mission" statements) but fail to understand that unless these statements revolutionize the nature in which work is accomplished or the actual behavior of individuals responsible for merging fiscal and academic priorities, these documents will remain abstract concepts. Implementing a strategic plan requires closure on the following issues and actions (basic, yet essential):

- Assuming the identification of participants, accountability matters, institutional goals and objectives, and the timing and sequence of implementation;
  How will new initiatives or programs be introduced in different functional units?
  How will you approach the management of organizational resistance?
  What resources will be required?
  Who will coordinate the plan?
  How will everyone know when the plan becomes an integral part of the values and mission of the organization?
  What steps must be taken in each organizational unit to reflect integration in the way decisions are made, relationships are maintained, and services are provided?

  How will the organization (you) respond to any decrease in the will to sustain implementation of the plan? What is the appropriate response to loss of motivation and support? What is the minimum support needed in order to proceed?
- Assuming the plan will enhance the function, efficiency, and productivity of others;
  - What actions need to be taken to inform the organization of the plan and its purpose?
  - What will be the actual impact of the plan on people, functions, etc.? How will you know when everyone has possessed requisite knowledge and skills?
  - How will the consequences of the plan be identified and assessed?
  - What behavioral and process changes are expected of employees?
- Assuming the plan will result in development of new standards of productivity, compensation, performance, or evaluation (to reflect desired changes or mitigate unacceptable actions or reactions);
  - How will the organization demonstrate the value of the plan? Will it connect to performance and productivity?
  - At what point in the process are individuals and units expected to adopt new behaviors?
  - What behaviors and achievements should be acknowledged and rewarded?
  - How will formal and informal rewards be managed? Care should be taken to prevent the process of acknowledging and rewarding from being misinterpreted by others in the organization. (Always one of the challenges posed by compensation systems that purport to reward—competence and merit.)
- Assuming the plan will measure the quality and quantity of change;
  - What information is needed? How will this information be acquired to determine the quality of changes?
  - How will "change" be reviewed and quantified to insure continual movement toward desired goals?
  - What are the agreed upon elements, functions, and services considered most important to the success of the plan? How will they be measured?
  - Will it be known that benchmarks have been met?
  - Will alternate strategies or assessments of benchmarks be developed?

As you can see, simply writing a plan is only a small first step. Small wonder then that most plans are eventually relegated to a store room in the library.

Rule No. 7: Use Committees Effectively

Most major decisions in academic organizations are made by committees of experts who combine their specialized knowledge to solve organizational problems. Therefore, organizational politics often center around committee politics. Having influence on a committee is frequently equal to having influence over the decision.

How can a committee be used to effect organizational change? First, appoint the right people to the right committee or get appointed by simply asking for an appointment from an incumbent official. If the organization has a "committee on committees," it is wise either to know someone on it or to be on it yourself. Such rule-making appointive committees wield power in all academic organizations, and this can be exploited to the best advantage. In addition, after acquiring membership, it is critical simply to *be there*. Remember, fluid participation is a characteristic of colleges and universities. The first tactic, then, is to get on the committee, be there with great regularity, stick it out even when others drop off.

The second tactic of committee success is to do your homework. Expertise is vital in a professional organization. If you observe the earlier rule of concentrating your efforts, you have more time to accumulate the knowledge that will put you ahead of others. In addition, it is always useful to make part of your homework the job of being secretary or chairperson of a group. The chairperson can set the agenda and often has the power to call committee meetings, while the secretary controls the memory of the committee. Committees are blessed with short memories, because most members do not recall or care what is recorded in the minutes. Controlling the memory of a committee means reiterating the issues that you consider important, a definite advantage for political bargaining. Doing your homework—whether it is gathering knowledge, learning the history, being the chairperson, or doing the secretarial chores—puts you in a strategically advantageous position.

A third tactical procedure in effective committee management is to keep ideas flowing. Because decision issues, like garbage dumps, attract various irrelevant material, they can be used to the change agent's advantage. Dump new ideas into the discussion and then compromise readily on the unimportant issues. Helping to load the garbage can leaves plenty to bargain over when the deadlines are close and allows you the chance to insist stubbornly about retaining key issues.

A fourth tactical consideration concerns structuring the decision-making process. Decisions do not, in themselves, result in action. More often, we spend a negligible amount of time making a decision and a great deal of time (sometimes a lifetime) managing the consequences of our decisions! Decisions are effectuated through people. It is a well-known premise that more efficient and concrete outcomes of the decision-making process will result if the human processes used to implement decisions are structured; e.g., committees are appointed, tasks are defined, priorities are set, deadlines are met, and, perhaps most importantly, as decisions are prioritized and legitimized, core constituencies (who are represented on committees) are given a vested interest in decisional outcomes. Task forces, committees, group consultation, all are essential components of governance in higher education. I advocate a decision-making structure that blends ad hoc and permanent constituent members, legitimized through formal appointment. However, unless the consultative process is directed with a firm hand, endless debate may result.

A formalized approach permits administrators to effectuate decisions, when they lack the "status" of president. Used correctly it precludes the "end run" and it mandates that everyone in the room, after discussion, "agree." As decisions are legitimized by sources (groups) holding increased status, it becomes difficult for your opponents to undermine, ridicule, or sabotage (through inaction) decisions arrived at using this model. The structure is especially effective when implementation, discussion, review, and analysis must cross jurisdictional divisions. It will permit input from the best minds in the organization. Too often do we preclude ourselves from obtaining the benefit of the brightest and most intelligent in the organization because (a) there is no formal mechanism to accommodate their views in decision-making processes and (b) academic and administrative leaders rarely reach out beyond their division or school (or their trusted friends) when studying a critical issue. It remains your job to insure that the best opinions, even those voiced by organizational pariahs, are resourced. This normally does not occur in informal consultative systems or when institutional concerns cross organizational lines of authority.

Rule No. 8: Use the Formal System

Colleges and universities, like other bureaucracies, have complex formal systems to carry out their activities. Often naive change agents are not aware that they can achieve a desired outcome simply by asking the appropriate official for it. This requires savvy. It requires experience within the organization. It requires knowing where the levers are, and which ones to push.

Inexperienced change agents may fail to realize that most organization officials are eager to please. Success is difficult to judge in most professional organizations because the tasks are too ambiguous to be assessed. As a consequence, most officials depend upon "social validation" for judgments of success. That is, they are successful if people are pleased and think they have done a good job. The ambiguity of the task, the lack of hard evaluation criteria, and the psychological need of most faculty and administrators for approval gives tremendous advantage to partisans who want to get something done. Do not forget a basic idea: ask for what you want and you will be surprised how many times you get it.

Rule No. 9: Follow Through to Push the Decision Flow

I have said that the concept of "decision making" is a delusion. Decisions are not really made; instead, they come unstuck, are reversed, get unmade during the execution, or lose their impact as powerful political groups fight them. In real life, decisions go round and round in circles, and the best one can hope for in the political battle is a temporary win.

As a consequence, the effective individual knows that he must follow important decisions even after they have supposedly been made. What do most people do after the committee has reached its decision? They evaporate. The person who traces the decision flow on through to execution and who fights when issues are distorted is the person who really has power. The truly dedicated partisan who wants to implement change is a tenacious watchdog, monitoring the steps of the decision and calling public attention to lapses in implementation.

Permit a final word on tactics associated with this rule. Set deadlines in the process of making decisions. Delay is the enemy of change; deadlines are flags that help call attention to stalling. Second, give ideas "sheltered starts." If placed back into the regular routine of the organization, a new change will be smothered by powerful old routines. As a consequence, the shrewd individual builds a shelter around the change in its infancy. This often means giving the program or idea a home under the wing of a strong, hospitable executive or faculty member in the college. Only later, after the new idea has established roots, should it be placed into the regular structure of the organization.

Several follow-through techniques involve managing people. It is always useful to place your allies in the vanguard of those responsible for executing the decision. If allies embodying your ideas are influential, the change is more likely to succeed. Reward systems are also very important. Do you want things to change? Then reward people whose behavior helps promote the change. Rewards can be straightforward in the form of money, or they can take the equally valuable form of prestige, status, and public acclaim.

Rule No. 10: Glance Backward

Let us assume you have followed my advice and have been effective. The last admonition is the hardest to make: be skeptical about your own accomplishments. Few good changes have eternal lives. A deep ego-investment can be made in a project that does not work. In this sense, following through means evaluating, judging, and deciding whether performance lives up to expectations. If it does not, you must start again. Evaluating your own idea as objectively as possible and listening carefully to the evaluations of others are valuable and necessary skills for true change agents.

Any organization's vitality and creativity depend heavily on the constant influx of new ideas and people. Even the new idea that you worked so hard to establish will, in time, be dull and old. The conservatives of the present area championed ideas that, at one time, were considered radical. The last step, then, is the most ruthless of all: kill your own project when it has outlived it usefulness. This is where most fail. After building their investments they fight like Phoenicians to hang on to ideas long since grown old. Cycles must continue, and the change agent must once more struggle to infuse creativity and excitement into the academic organization.

A Final Word to Academic Leaders

A final word to would-be leaders. There are many books that concern themselves with leadership and mountains of articles. Much of what is written is valuable but it is written, by and large, by those who study the topic. As you are no doubt aware, there is a big difference. My concept of leadership is simple and direct—leaders identify an issue that is perceived by a larger community as an important dilemma or a critical problem. The true leader offers (and implements) a solution. For example, Moses conceived of freedom and a vision of the promised land—and led a group of former slaves through the desert. (And even Moses was allowed only to see Israel, never to set foot there!) Leaders are those who identify and articulate a vision and successfully manage a solution. Implementation demands a "buy-in" and sacrifice from key constituents/community members.

It is my hope you will find a few valuable ideas hidden within my rhetoric. Were it your pleasure, I would be honored to follow up and discuss your reactions to the enclosed. I am, at the moment, planting tomatoes in my garden and would welcome a return to the challenges of advising esteemed individuals such as yourself.

Notes

[1] In the case of nontraditional executives or presidents you will be judged on a different (higher) standard than would a more "traditional" person.

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Campus Racial Climate and the Adjustment of Students to College

A Comparison Between White Students and African-American Students

Benefits associated with a college degree are multiple. From a societal standpoint, a college graduate is far less likely to commit a crime and approximately 30% less likely to be unemployed compared to a student who has simply earned a high-school diploma (Hossler, Braxton, & Coopersmith, 1989; Pascarella & Terenzini, 1991). From an individual perspective, each additional year of schooling past high school seems to prolong life by 0.4%, or nearly 2 percentage points, upon graduation from college (Hossler, Braxton, & Coopersmith, 1989). Moreover, earning a college degree is known to produce greater gains in occupational prestige (e.g., Lin & Vogt, 1996) and economic returns (e.g., Leslie & Brinkman, 1986) as compared to simply attaining a high-school diploma.

A precondition for the attainment of these benefits is persistence to graduation. Although persistence rates have remained remarkably stable at roughly 45% as far back as 1885 (Tinto, 1982; Porter, 1990), there are notable variations when the ethnicity of the student is introduced. Com-

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pared to White students, African Americans are 20% less likely to complete college within a six-year period (Porter, 1990). For every two White students who drop out in that time frame, three African Americans have departed from a postsecondary institution (Porter, 1990).

Several hypotheses have been advanced that may account for enrollment and persistence trends of minority students. Hauser and Anderson (1991) explored the extent to which declines in college participation rates could be attributed to changes in college aspirations and changes in high-school completion rates among African Americans. Tinto (1987) argued that overall differences in persistence rates between African Americans and non-minorities were primarily due to differences in their academic preparedness rather than differences in their socioeconomic backgrounds. Tinto contended that differences in ability arise from prior educational experiences at elementary and secondary school levels that tend to favor the educational achievement and persistence of non-minorities relative to minorities. Other researchers speculate these trends could be attributed to changes in the composition of federal financial aid packets and patterns of financing higher education exhibited by minority students (Mortenson & Wu, 1990; Olivas, 1985 Porter, 1990; St. John, 1994).

Exposure to a climate of prejudice and discrimination in the classroom and on campus has gained attention as the main factor accounting for differences in withdrawal behavior between minorities and non-minorities (e.g., Fleming, 1984; Hurtado, 1992, 1994; Hurtado, Carter, & Spuler, 1996; Smedley, Myers, & Harrel, 1993). The role of perceived discriminatory behavior on the maladaptive behavior of minority students to college has been scrutinized through two conceptualizations. The first approach relies on Student-Institution Fit models (Bean, 1990; Spady, 1970; Tinto, 1993) and views prejudice and discrimination as a factor interfering with a student's integration into his or her social and academic environments. A second, more recent approach uses transactional models of stress and coping behaviors as their theoretical premises (Muñoz, 1987; Smedley, Myers, & Harrell, 1993).

The transactional model (Muñoz, 1987; Smedley, Myers, & Harrell, 1993) regards experiences of racism and discrimination on campus as psychological and sociocultural stressors. Like other stressors, experiences of prejudice and discrimination are associated with psychological distress that can lead to the maladjustment of students at their respective institutions. Unlike other stressors, however, experiences of discrimination are considered unique in that they (a) are present only among minority students and (b) heighten the feeling of not belonging at the institution with spillover effect on a student's academic performance.

Proponents of the Student-Institution Fit perspective argue that intolerance toward the minority student plays a key role for explaining his or her maladjustment with the institution. When members of an institution are prejudiced about and discriminate against the morphological makeup, values, and ways of behaving associated with a particular subculture on campus, members of this subculture view this as lack of tolerance (Murguía, Padilla, & Pavel, 1991). This intolerance establishes a climate of racial prejudice and discrimination that permeates the interactions of the minority student throughout the campus (Hurtado, 1992, 1994; Hurtado, Carter, & Spuler, 1996; Loo & Rolison, 1986). This climate of prejudice and discrimination creates disincentives for the minority student to interact with non-minority students, faculty, and campus administrators (D. G. Smith, 1989). The resulting low involvement with the different campus communities, then, impinges on the minority's student cognitive and affective development as well as his or her decisions to persist in college (Fleming, 1984; Loo & Rolison, 1986; D. G. Smith, 1989, 1992; Tracey & Sedlacek 1984, 1985, 1987; Thompson & Fretz, 1991; Suen, 1983).

Despite advances in conceptualizations of this phenomena and an ever increasing research base, firm conclusions regarding the effect of discrimination and prejudice on the adjustment of students to college remain to be established. Scholars have been inconsistent in how they conceptualize and measure students' experiences and perceptions of prejudice and discrimination. Previous measures have included (a) adjustment problems with curriculum, support services, faculty, peers, and academic staff (Allen, 1988; Fleming, 1984; Nettles, Thoeny, & Gosman, 1986); (b) a lack of congruence between the minority student and the institution (Loo & Rolison, 1986; Suen, 1983); (c) global measures assessing racial tensions, perceived ability to communicate with students from other ethnic backgrounds, experiences of discrimination, perceived racial/ethnic tension, and degree of trust between minorities and campus administrators (Hurtado, 1992, 1994; Hurtado et al., 1996); and (d) ability to understand and cope with racism (Tracey & Sedlacek, 1987).

The lack of studies contrasting minorities with non-minorities is also problematic. Though there is support for the notion that perceptions of prejudice have negative impacts on student outcomes when the analysis focuses on a single minority group (e.g., Fleming, 1984; Hurtado, 1992; Hurtado et al., 1996), results are rather mixed when different racial and ethnic groups are studied simultaneously. Arbona and Novy (1990), for instance, failed to provide support for Tracey and Sedlacek's (1987) suppositions that noncognitive dimensions were predictive of college grades and persistence for both African American and Hispanic students. Likewise, Nettles, Thoeny, and Gosman (1986) found that cognitive and noncognitive factors explained college academic performance not only for African Americans but for Whites as well. They noted that the intensity of the effects of cognitive and affective factors varied when the analyses were disaggregated by ethnicity, but the patterns of the effects themselves were remarkably similar for both minorities and nonminorities. More recently, Cabrera and Nora (1994) found that although minorities perceived more acts of discrimination and prejudice than Whites, these negative perceptions exerted mostly an indirect effect on their decisions to persist (Nora & Cabrera, 1996a). Moreover, perceived discriminatory behavior affected the social and academic adjustments to college among White students in a pattern similar to the one exhibited by minorities. Finally, Eimers and Pike (1997) reported that perceived racial discrimination had equivalent effects on intent to persist for Whites and minorities. Also, the authors found that both minorities and non-minorities undergo a college adjustment process remarkably similar. Only 2 of the 12 relationships hypothesized were found to be empirically different.

Objectives

This study examines the role that perceptions of prejudice and discrimination play within the adjustment to college processes of African American and White students in terms of four assertions in the literature. The first assertion claims that academic preparedness for college is one of the main factors accounting for differences in persistence behavior between African American and White students (Tinto, 1987, 1993). The second assertion claims that successful adjustment to college involves severing ties with family and past communities (Tinto, 1987). The third assertion rests on two interrelated claims: (a) perceptions of prejudice and discrimination are unique to minorities and (b) persistence decisions among minorities are shaped primarily by exposure to a climate of discrimination. The final assertion claims that current models of college adjustment fail to capture minorities' collegiate experiences (Tierney, 1992).

Methodology

Data sources

The sample was selected from incoming first-year students at 18 four-year colleges and universities that participated in the National Study of

Student Learning (NSSL), a large longitudinal investigation of the factors influencing student learning and personal development in college. Institutions were selected from the National Center on Education Statistics IPEDS data base to represent different colleges and universities nationwide on a variety of characteristics, including type and control, size, location, and the ethnic distribution of the undergraduate student body. In aggregate, the student population of those 18 institutions approximated the national population of undergraduates in four-year institutions by ethnicity and gender.

The subjects in this study consisted of 1,454 students (1,139 Whites and 315 African Americans) attending four-year institutions in the fall of 1992. Although the original sample was comprised of all students enrolled at four-year institutions (*N* = 2,416), appropriate sample sizes were attained only for two ethnic groups. Several procedures were employed to secure a representative sample of students. To avoid confounding effects due to type of institution attended, only four-year students were included. Next, based on college transcripts, only those students with enrollment status information and grade point averages were retained. Several researchers have warned against the use of self-reported student information, particularly as it pertains to family income, enrollment status, and academic performance (e.g., Adelman, 1998; Cabrera, Stampen, & Hansen, 1990).

The Model

Construct definitions, item development and measurement models were based on the Student Adjustment Model (Nora & Cabrera, 1996a) and the Perceptions of Prejudice-Discrimination Model (Cabrera & Nora, 1994). The Student Adjustment model proposes that the experiences of the student at his or her institution are reflected in two domains: a social domain encompassing experiences with other students and faculty (but of an informal nature), and an academic domain reflecting experiences with faculty, other students (but of an academic nature), and academic staff. Because these experiences have been found to enhance the affective and cognitive development of the student, the model posits that students undergo academic and intellectual development, become more involved in a healthy socialization process, feel more committed to attaining a college degree, and develop a sense of belonging at and commitment to their institutions. Commitments to an institution are also expected to be enhanced to the extent the student perceives his or her institution as instrumental in the attainment of valued outcomes such as socioeconomic benefits (Tinto, 1987).

Gains in academic and intellectual development are expected to exert a positive influence on three major student outcomes: academic performance during the first year, commitment to the institution in which they are enrolled, and commitment to the attainment of an undergraduate degree. If these outcomes are achieved during the first year in college, students are more likely to continue attending their institutions (Tinto, 1987, 1997). Based on theoretical frameworks by Tinto (1987, 1993) and Bean and Metzner (1985), the model further presupposes that academic and social experiences are interdependent: positive experiences in one domain are conducive to positive experiences in the other. Support for this interrelationship is provided by Stage (1989), Cabrera, Castañeda, Nora, and Hengstler (1992), and Cabrera, Nora, and Castañeda (1993).

The model further hypothesizes that a student's precollege academic ability has a direct influence on the academic performance of the student, his or her academic and intellectual development during the first year in college, and the decision to reenroll in the coming academic year. Precollege academic abilities not only impact the potential to do college work but also the motivation to engage in such work itself (Tinto, 1993). Furthermore, precollege ability is posited as having a direct influence on the persistence of the student and exerting a stronger effect for African Americans than it has for non-minorities. This hypothesis is consistent with Tinto's (1987) proposition that preparation for college may be particularly critical for persistence decisions among African American students.

The model regards parental encouragement as facilitating the transition of the student to college. Moreover, it exerts a positive influence on a student's educational aspirations and on her or his decision to persist in college. These hypothesized relationships are consistent with several college persistence models (e.g., Bean, 1990; Bean & Vesper, 1992, Cabrera, Nora, & Castañeda, 1993; Nora, 1987), the occupational attainment literature (Sewell & Hauser, 1980), and recent research (Cabrera et al., 1993; Nora, Cabrera, Hagedorn, & Pascarella, 1996). The conceptual framework also posits that parental support and encouragement may covary with a student's precollege academic ability. Research on occupational attainment indicates parental encouragement tends to be positively associated with a student's ability (Hossler, Braxton, & Coopersmith, 1989).

Perceptions of racial prejudice and discrimination on campus and in the classroom are expected to have a direct impact on withdrawal decisions, while at the same time affecting a student's academic performance and his or her social and academic experiences at the institution. Moreover, these perceptions lessen commitments to both the institution and to the goal of college completion. These hypotheses are consistent with several perspectives regarding the nature of the maladjustment of minority students at predominantly White institutions (e.g., Fleming, 1984; Hurtado, 1992, 1994; Hurtado et al., 1996; Loo & Rolison, 1986; Smedley, Meyers, & Harrell, 1993; Suen, 1983). In Fleming's (1984) student developmental model, for instance, exposure to prejudice and discrimination on campus is viewed as one of the most important factors impinging on the cognitive growth (i.e., academic performance, critical thinking) and the affective development of minority students. Models by Tracey and Sedlacek (1984, 1985, 1987), Suen (1983), and Loo and Rolison (1986) regard racially related experiences in college as one of the main explanatory variables accounting for differences in persistence and academic performance between minorities and non-minorities. D. G. Smith (1989, 1992), building on Astin's (1984) involvement postulates, argues that perceptions of prejudice and discrimination operate on the cognitive and affective development of minorities by discouraging them from becoming involved with faculty, students, and campus organizations. As a result of this isolation in the classroom and in student-related activities, the minority student is more likely to be deprived of the opportunity to learn new skills and concepts. A transactional model by Smedley, Myers, and Harrell (1993) regards experiences of racism and discrimination on campus as a psychological and sociocultural stressor that can lead to the maladjustment of the minority student at the institution. Like other stressors, experiences of racism and alienation are associated with psychological distress and poor academic performance.

Recent research seems to support some of these propositions. Hurtado, Carter, and Spuler (1996) have reported that discriminatory experiences had a dampening effect on Latino students' commitments to the institution.

Constructs and Measures

Persistence. The dependent variable for the study was the student's persistence decision. This measure was dichotomous in nature. Students who reenrolled in the fall of 1993 were coded as "1". Those who voluntarily withdrew between the end of the spring 1993 semester and the beginning of the fall 1993 semester were classified as "0".

Precollege academic ability. Students' self-reported high-school grade point averages were used to provide measures of this construct. Participating institutions did not provide information on SAT/ACT scores and high-school grade point averages.

Parental encouragement. This construct was measured via an item assessing the extent to which the student felt that his or her family provided encouragement to continue attending the institution. This item was drawn from Cabrera et al. (1992).

Perceptions of prejudice-discrimination. Four items were employed to measure this construct. These items gauge the extent to which the student (a) heard negative words about minorities while attending classes, (b) believed students were prejudiced against minorities, (c) observed discriminatory words, behaviors, or gestures directed at minority students, and (d) thought that instructors treated all students the same regardless of race. These items were adapted from the campus/racial climate scale (Cabrera & Nora, 1994) and were consistent with research showing that questions appraising actual witnessing of acts of prejudice and discrimination are highly predictive of the adjustment process to college among both minorities and non-minorities (i.e., Eimers & Pike, 1997; Nora & Cabrera, 1996a).

Academic experiences. The Interactions with Faculty scale developed by Pascarella and Terenzini (1980) provided the means for measuring students' academic experiences. The scale consisted of six items assessing the nature and quality of the interactions of students with faculty. Support for the use of this scale is further provided by Nettles, Thoeny, and Gosman (1986), who reported that measures gauging students' perceptions regarding the quality of their interactions with faculty were more predictive of academic performance for both African Americans and Whites than measures assessing the actual frequency of interaction between faculty and the student.

Social experiences. A single scale (Interactions with Peers), also developed by Pascarella and Terenzini (1980), provided a measure of the social involvement of students at their respective institutions. This scale consisted of five items measuring overall satisfaction with the social life of the student at campus, ease in making friends, and the influence such relationships had on the intellectual growth of the student. Evidence of the predictive validity of this scale can be found in Bers and Smith (1991), and Cabrera et al. (1992), among others.

Academic and intellectual development. Perceived gains in learning-related and cognitive skills were assessed via items developed by Pace (1979) and constructs established by Nora, Cabrera, Hagedorn, and Pascarella (1996): (a) quantitative skills, (b) ability to think analytically, and (c) appreciation for fine arts. Evidence about the construct validity of these scales as they pertain to persistence can be found in Nora et al. (1996).

Academic performance. The cumulative grade point averages earned by the end of the spring 1993 semester (end of first year in college) were provided through institutional records.

Goal commitment. Commitment to program completion, a single item, was employed for this construct. Because this item was found to be highly skewed (most students expressing a high desire to complete their program of studies), the item was dichotomized. Consequently, this dichotomy conceptually reflected whether a student was highly committed to earning a degree (coded 1) or not (coded 0).

Institutional commitment. Importance of completing a college degree at the institution provided the measure for this construct. Distribution of the scores suggested a bipolar pattern. Accordingly, this item was measured dichotomously (1 if the student was committed to the institution, 0 otherwise).

All items were measured by means of Likert scales ranging from 1 (strongly disagree) to 5 (strongly agree). Scale scores were based on averages across respective items. Negatively worded items were recoded for consistency with other items in corresponding scales. Table 1 displays summary statistics and reliabilities for Whites and African Americans.

Data Analyses

Given the dichotomous nature of the dependent variable (persistence), PRELIS 2.02 (Jöreskog & Sörbom, 1988, 1993) was employed to compute the polyserial-polychoric correlations. Following recommendations by Jöreskog & Sörbom (1988, 1993) the PRELIS program was also used to assess the extent to which violations to the assumption of multivariate distribution were present in the data. To correct for these violations, the

TABLE 1

Descriptive Statistics, Reliabilities, and *T*-Tests

	Whites			African Americans			
Construct/Variable	Mean	*SD*	Alpha	Mean	*SD*	Alpha	*t*-test
1. Precollege ability	5.038	0.812	—	4.578	0.710	—	11.06**
2. Parental encouragement	4.631	0.613	—	4.603	0.639	—	0.78
3. Perceptions of prejudice & discrimination	2.909	0.885	0.801	2.867	0.948	0.747	0.49
4. Academic experiences	3.519	0.699	0.836	3.513	0.719	0.809	0.14
5. Social experiences	4.121	0.779	0.847	3.924	0.763	0.759	4.55*
6. Academic & intellectual development							
A. Quantitative skills	2.110	0.776	0.861	2.359	0.763	0.818	–5.61**
B. Analytical thinking	2.717	0.610	0.759	2.793	0.631	0.790	–2.11*
C. Awareness of fine arts	2.307	0.647	0.754	2.367	0.647	0.756	–1.62
7. Academic performance	3.013	0.631	—	2.719	0.721	—	6.58*
8. Institutional commitment	4.162	0.970	—	4.078	1.018	—	1.46
9. Goal commitment	4.616	0.660	—	4.709	0.642	—	–2.55**

*$p < 0.05$. **$p < 0.01$

asymptotic variance-covariance matrix was estimated and used in the estimation of the structural model. LISREL 8.02 (Jöreskog & Sörbom, 1993), by means of a weighted least square (WLS) solution, was used to estimate the structural model. Jöreskog & Sörbom (1993) recommend using the WLS solution, because it provides better estimates of the chi-square goodness-of-fit measures and standard errors whenever categorical data are involved and departures from normality are observed.

Several indicators were used to judge the goodness of fit of the model. These included the chi-square[1], the Goodness of Fit Index (GFI), the Adjusted Goodness of Fit Index (AGFI)[2], the Root Mean Square Residual (RMR)[3], and the type-2 Normed Fit Index[4]. Assessment of the goodness of fit of the model was also guided by a careful examination of standardized residuals, Q-plots of standardized residuals, modification indices, and individual parameter estimates. Because the model hypothesized directional effects among the constructs, one tailed *t*-tests were employed for assessing the statistical significance of the structural paths.

Results

Reliability coefficients for both Whites and African Americans indicated a high degree of consistency for the campus/racial climate scale. The Cronbach alpha coefficients for the two scales were 0.80 and 0.75 for non-minorities and African Americans, respectively (see Table 1). High reliabilities were also found for the rest of the scales across the two ethnic groups. These reliabilities ranged from 0.75 to 0.86 among Whites and from 0.75 to 0.82 among African Americans.

No differences were observed in perceptions of prejudice and discrimination between Whites and African Americans (*t*-test = 0.49, see Table 1). However, African Americans were slightly less likely to report positive experiences with peers than were Whites. Consistent with Tinto's (1993) assertion and past research (e.g., Nettles et al., 1986), African Americans entered into college with slightly lower precollege academic abilities than Whites. African Americans' academic performance in college was also slightly lower (see Table 1). On the other hand, African Americans reported more gains in quantitative and analytical skills and were more committed to the goal of college completion than were Whites. Both groups of students were equally committed to the institution, reported similar levels of encouragement and support from their parents, were comparably satisfied with faculty, and displayed similar gains in awareness of fine arts (see Table 1).

Tables 2 through 5 report the direct, indirect, and total effects of the variables on six cognitive and affective outcomes as well as on persistence decisions. For African Americans the goodness of fit indexes were: chi-square = 97.11 (*df* = 30; *p*-value = 0.000), Adjusted Goodness of Fit = 0.97, RMR = 0.100, and NFI2 = 0.99. For Whites, these indicators were: chi-square = 137.71 (*df* = 70; *p*-value = 0.000), Adjusted Goodness of Fit = 0.97, RMR = 0.067, and NFI2 = 0.96. With the exception of the chi-square, all indicators of fit provide support for the model across the two ethnic groups. The stem leaf plots and the Q-plots of standardized residuals provided additional evidence on behalf of the model.

Academic Experiences

Parental encouragement and perceptions of prejudice accounted for 12% of the variance in African Americans' experiences with faculty (see Table 2). Whereas parental encouragement exerted a positive effect on these experiences, perceptions of prejudice and discrimination had the largest negative effect on African Americans' academic experiences. For Whites, parental encouragement and perceptions of prejudice accounted for only 3% of the variance observed. Both variables significantly affected Whites' experiences with faculty, but to a lesser extent than the effects observed among African Americans.

Social Experiences

Parental encouragement and perceptions of discrimination explained 6% of the variance in social experiences among African Americans (see Table 2). Though both variables exerted significant effects, results show that the social experiences of African American students were negatively dominated by perceptions of discrimination. For Whites, these two variables explained 8% of the variance in Social Experiences. Only parental encouragement was found to exert a significant effect among Whites.

Academic and Intellectual Development

Academic ability, parental encouragement, perceptions of prejudice, and academic and social experiences explained 25% of the variance in African Americans' academic and intellectual developments (see Table 3). The most important variables directly affecting African Americans' academic and intellectual development were: academic experiences, academic ability, and social experiences. Perceptions of discrimination exerted an indirect effect on this cognitive outcome. For Whites, these five variables accounted for 17% of the variance in academic and intellectual development. In order of importance, these factors were: academic and social experiences, parental encouragement, and academic ability.

TABLE 2

Direct, Indirect, and Total Effects on Academic Experiences and Social Experiences

	Academic Experiences						Social Experiences					
	Whites			African Americans			Whites			African Americans		
Construct	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total
1. Academic ability	—	—	—	—	—	—	—	—	—	—	—	—
2. Parental encouragement	0.15**	—	0.15**	0.17**	—	0.17**	0.29**	—	0.29**	0.11**	—	0.11**
3. Perceptions of prejudice & discrimination	−0.09**	—	−0.09**	−0.29**	—	−0.29**	0.03	—	0.03	−0.20**	—	−0.20**
4. Academic experiences	—	—	—	—	—	—	—	—	—	—	—	—
5. Social experiences	—	—	—	—	—	—	—	—	—	—	—	—
6. Academic and intellectual development	—	—	—	—	—	—	—	—	—	—	—	—
7. Academic performance	—	—	—	—	—	—	—	—	—	—	—	—
8. Goal commitment	—	—	—	—	—	—	—	—	—	—	—	—
9. Institutional commitment	—	—	—	—	—	—	—	—	—	—	—	—
		$R^2 = 0.03$			$R^2 = 0.12$			$R^2 = 0.08$			$R^2 = 0.06$	

*$p < 0.05$. **$p < 0.01$, one-tailed.

TABLE 3

Direct, Indirect, and Total Effects on Academic & Intellectual Development and Academic Performance

	Academic & Intellectual Development						Academic Performance					
	Whites			African Americans			Whites			African Americans		
Construct	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total
1. Academic ability	0.11**	—	0.11**	0.28**	—	0.28**	0.39**	0	0.40**	0.47**	−0.02	0.45**
2. Parental encouragement	0.11**	0.08**	0.19**	−0.07	0.07**	0	0.02	0.01	0.03	−0.06	0	−0.06
3. Perceptions of prejudice & discrimination	0.04	−0.02**	0.02	−0.06	−0.12**	−0.18**	0	0	0	−0.05	0.02	−0.03
4. Academic experiences	0.30**	—	0.30**	0.33**	—	0.33**	—	0.01	0.01	—	−0.03	−0.03
5. Social experiences	0.12**	—	0.12**	0.14**	—	0.14**	—	0.01	0.01	—	−0.01	−0.01
6. Academic and intellectual development	—	—	—	—	—	—	0.05*	—	0.05*	−0.09	—	−0.09
7. Academic performance	—	—	—	—	—	—	—	—	—	—	—	—
8. Goal commitment	—	—	—	—	—	—	—	—	—	—	—	—
9. Institutional commitment	—	—	—	—	—	—	—	—	—	—	—	—
		$R^2 = 0.17$			$R^2 = 0.25$			$R^2 = 0.17$			$R^2 = 0.19$	

*$p < 0.05$. **$p < 0.01$, one-tailed.

Academic Performance

Academic ability, parental encouragement, perceptions of prejudice, academic and social experiences, and academic and intellectual development accounted for 19% of the variance in African Americans' academic performance (see Table 3). Only prior academic ability was found to exert a significant effect on this cognitive outcome. Perceptions of prejudice did not have direct or indirect effects. For Whites, these six variables explained 17% of the variance in academic performance. As in the case of African Americans, only academic ability exerted a significant effect on this cognitive outcome.

Goal Commitment

Seventy-nine percent of the variance in African Americans' goal commitment was accounted for by parental encouragement, perceptions of prejudice, academic and social experiences,and academic and intellectual development (see Table 4). Only parental encouragement and academic and intellectual development exerted a significant effect. Parental encouragement dominated this outcome among African Americans. The effect associated with this variable was almost four times higher than the one exerted by academic and intellectual gains. Perceptions of discrimination exerted no direct or indirect effects on African Americans' goal commitment. Among Whites, these five variables explained 55% of the variance in goal commitment. As in the case of African Americans, the largest effect was exerted by parental encouragement. Unlike African Americans, perceptions of prejudice had a small but significant negative effect on Whites' goal commitment.

Institutional Commitment

Thirty-one percent of the variance in African Americans' attachment to the institution was explained (see Table 4). Exposure to a campus climate of prejudice substantially lessened African Americans' commitment to the institution. However, parental encouragement and positive academic experiences had the opposite effect. Prior academic ability, social experiences and gains in intellectual growth did not have a direct effect on African Americans' commitment to the institution. For Whites, these six factors explained 30% of the variance in institutional commitment. The largest effect was exerted by parental encouragement followed by perceptions of prejudice, social and academic experiences, and academic and intellectual development.

Persistence

Academic ability, parental encouragement, perceptions of prejudice, academic performance, goal commitment, and institutional commitment

TABLE 4

Direct, Indirect, and Total Effects on Goal and Institutional Commitments

	Goal Commitment						Institutional Commitment					
	Whites			African Americans			Whites			African Americans		
Construct	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total
1. Academic ability	—	0.02	0.02	—	0.05**	0.05**	0.05	0.01	0.06*	0.01	0	0.01
2. Parental encouragement	0.65**	0.05**	0.70**	0.88**	-0.05	0.82**	0.31**	0.09**	0.40**	0.30**	0.02	0.32**
3. Perceptions of prejudice & discrimination	-0.11**	-0.01	-0.11**	-0.09	0.06	-0.03	-0.21**	-0.01	-0.22**	-0.40**	-0.03	-0.43**
4. Academic experiences	0.11**	0.05**	0.16**	-0.20	0.06**	-0.14	0.15**	0.03**	0.18**	0.10**	0	0.10**
5. Social experiences	0	0.02**	0.02	-0.17	0.03*	-0.14	0.16**	0.01**	0.18**	-0.02	0	-0.02
6. Academic and intellectual development	0.17**	—	0.17**	0.20**	—	0.20**	0.10**	—	0.10**	0	—	0
7. Academic performance	—	—	—	—	—	—	—	—	—	—	—	—
8. Goal commitment	—	—	—	—	—	—	—	—	—	—	—	—
9. Institutional commitment	—	—	—	—	—	—	—	—	—	—	—	—
		$R^2 = 0.55$			$R^2 = 0.79$			$R^2 = 0.30$			$R^2 = 0.31$	

$^*p < 0.05$. $^{**}p < 0.01$, one-tailed.

explained 56% of the variance in African Americans' decisions to persist in college (see Table 5). Decisions to persist were directly influenced the most by parental encouragement, followed by institutional commitment and academic performance. Perceptions of prejudice and discrimination and academic ability were found to exert only an indirect but large effect. These six factors explained 39% of the variance in decisions to persist among Whites. Unlike African Americans, White students' decisions to persist were dominated by college-related experiences. The largest effect was exerted by institutional commitment, followed by academic performance, academic ability, and parental encouragement. As in the case of African Americans, perceptions of discriminatory acts exerted only an indirect effect on this behavioral outcome.

Non-Causal Relationships

For both groups, the amount of parental encouragement was in direct proportion to a student's prior academic ability (phi = 0.42 for African Americans and phi = 0.39 for Whites). Results also indicated that only among Whites were academic and social experiences positively interrelated (psi = 0.14).

Discussion

Limitations

Because this study uses Whites as a comparison group, it represents an improvement over previous research. Furthermore, the present study incorporates valid measures for constructs and uses a national sample. However, several limitations do constrain our ability to form strong conclusions regarding the role of perceptions of prejudice in the adjustment of African Americans to college. These problems pertain to the composition of the African American sample, the voluntary nature of the sample population, and the nature of the model tested.

The finding that African Americans have similar levels of perceptions of prejudice and discrimination as Whites is not only inconsistent with expectations, but with prior validations of the College Adjustment Model as well (Cabrera & Nora, 1994; Nora & Cabrera, 1996a). This problem stems from the fact that the majority of the African American sample (59%) was drawn from Historically Black Institutions, a subsample that exhibited significantly lower perceptions of discrimination and prejudice than their counterparts enrolled at predominately White institutions ($t = -5.6$, $p < 0.001$). Unfortunately, the small number of African Americans attending predominately White institutions (128) prevented us from disaggregating the analyses further. The voluntary na-

TABLE 5

Direct, Indirect, and Total Effects on Persistence

	Persistence					
	Whites			African Americans		
Construct	Direct	Indirect	Total	Direct	Indirect	Total
1. Academic ability	0.16**	0.12**	0.28**	–0.03	0.16**	0.14**
2. Parental encourgement	0.10**	0.19**	0.29**	0.52**	–0.10	0.43**
3. Perceptions of prejudice & discrimination	0.05	–0.09**	–0.05	0.15	–0.21**	–0.05
4. Academic experiences	—	0.08**	0.08**	—	0.07**	0.07**
5. Social experiences	—	0.07**	0.07**	—	0.02	0.02
6. Academic and intellectual development	—	0.06**	0.06**	—	–0.09	–0.09
7. Academic performance	0.24**	—	0.24**	0.39**	—	0.39**
8. Goal commitment	0.04	—	0.04	–0.27	—	–0.27
9. Institutional commitment	0.38**	—	0.38**	0.47**	—	0.47**
		$R^2 = 0.39$			$R^2 = 0.56$	

*$p < 0.05$. **$p < 0.01$, one-tailed.

ture of the sample also compounds our concerns about the representativeness of the sample of African Americans. For both Whites and African Americans alike, we observed that their self-reported high-school GPA was slightly higher than that of the general population. In spite of these two limitations it is important to note that the results of our study are largely consistent with those few studies that compared collegiate experiences between Whites and minorities in general (Eimers & Pike, 1997; Nora & Cabrera, 1996a) and between Whites and African Americans in particular (Arbona & Novy, 1990; Nettles et al., 1986).

Our model presumes that perceptions of prejudice and discrimination are institution-based; however, our results are based on students drawn from several institutions embracing different conditions pertaining to curriculum, course requirements, faculty, academic staff, and experiences with peers. Although the multi-institutional characteristic of our study does raise internal validity questions, this approach has an important advantage over single-based studies: multi-institutional studies do provide for greater variability in each of the measures under consideration than do single-based studies, a feature that enhances the ability to conduct model testing (Braxton, Sullivan, & Johnson, 1996). As noted by Nettles, Thoeny, & Gosman (1986) multi-institutional studies also overcome a major problem associated with single-institutional studies: securing adequate sample sizes of minority students. In view of these limitations, however, we consider that this study should be regarded as exploratory of the role that perceptions of prejudice and discrimination have on the adjustment of African Americans to college.

Conclusions

This study examined four important contentions related to the adjustment of African American and White students to college. The first widely held notion is that academic preparedness at the time of high-school graduation is a key factor accounting for differences in persistence behavior between African American and White students (Tinto, 1987, 1993). A second fallacy is that a successful adjustment to college by all students involves severing ties with family and past communities (Tinto, 1987). The third is that minorities and historically discriminated groups, targets of racism and bigotry, are the only ones susceptible to discriminatory perceptions on campus and that college academic performance and even persistence decisions for these groups are shaped primarily by exposure to a climate of discrimination. The final contention is that current models of the adjustment of students to college fail to capture fully minority collegiate experiences (Tierney, 1992).

No support was found for the claim that academic unpreparedness explains why African Americans are less prone to persist than Whites. In reality, though African American students reported that they had less prior preparation for college than their White counterparts, prior ability exerted at most an indirect effect on their decisions to persist. Save differences in magnitude, factors affecting African American students were largely similar to those affecting White students' decisions to persist (see Tables 2 through 5).

Disengagement with family, friends, and past communities is not a precondition for the successful adjustment to college; the reverse appears to be more truthful. For both African American and White students parental encouragement and support facilitated the transition into the academic and social realms of the institution, enhanced commitments to both the goal of college completion and to the institution, and increased the likelihood to persist in college. It should be stressed how important a role encouragement and support from family play in the persistence behavior of African Americans, for whom encouragement outweighed the effect of college academic performance, a factor that the extant literature underlines as the main determinant of persistence decisions for this group (Tinto, 1993).

Perceptions that prejudice and discrimination exist in the classroom and on campus are not unique to African Americans. Both groups were equally likely to perceive a campus climate of prejudice and discrimination. Furthermore, exposure to this type of campus climate impinges on college-related outcomes regardless of the ethnicity of the student. With two notable contrasts, in that perceptions of prejudice affect goal commitments only among Whites and social experiences only among African Americans, the pattern of the effects is remarkably similar for both groups. What distinguishes one group from the other is the intensity of the effect and the role that perceptions of discrimination play on commitments to the institution. Whereas perceptions of prejudice and discrimination have the second largest direct effect on Whites' institutional commitment, exposure to a prejudiced campus climate clearly dominates African Americans' commitments to the institution.

African Americans' cognitive outcomes and persistence decisions are not primarily shaped by perceptions of discrimination and prejudice. For African Americans, gains in quantitative skills, analytical thinking, and appreciation of fine arts are dependent upon positive interactions with faculty, beneficial experiences with students, and prior academic ability. Their college academic performance is shaped primarily by prior academic ability, whereas persistence decisions are dominated by factors other than perceptions of discrimination and prejudice. In short, predictors of White students' cognitive and persistence outcomes are basically the same as African Americans', a finding that is consistent with those few studies that examine differences in the adjustment process between minorities and non-minorities (Eimers & Pike, 1997; Cabrera & Nora, 1994; Nettles et al., 1986; Nora & Cabrera, 1996a).

The assertion that current conceptual models of college persistence are inappropriate for explaining persistence decisions among minorities (Tierney, 1992) was not supported. Significant variation on several African Americans' college-related outcomes was explained by the model (see Tables 2 through 5); furthermore, the model explained more variation on persistence decisions among African Americans than it did among Whites (56% vs 39%). Over fifty percent of the hypothesized interrelations among the variables for African Americans were also validated.

Implications

There has been much discussion on the merits of a diversified student body. Theories of adult learning, for instance, consider learning enriched and enhanced when an organization provides opportunities for its members to work with dissimilar others on an ongoing basis (Bandura, 1986). International management experts consider that for companies to compete successfully in an increasingly global market, a workforce whose values and ways of thinking transcend ethnocentric frameworks is a must (Pucik, Tichy, & Barnett, 1993). Hence, one criterion by which to judge institutional success is the extent to which colleges and universities prepare individuals to be tolerant of, if not open to, cultural diversity. To do so, however, colleges and universities need to maintain a culturally diverse student body with opportunities for positive contacts among all groups on a continuous basis.

Maintaining a vibrant and diversified student body presupposes understanding how Whites and minorities differ in their adjustment to college (Eimers & Pike, 1997). Our results indicate that minorities and non-minorities adjust to college in a similar manner. For both groups, persistence is determined by preparation for college, positive academic experiences, strong parental encouragement, and academic performance in college. For both groups, exposure to a campus climate of prejudice and intolerance lessens commitment to the institution and, indirectly, weakens decisions to persist. In view of this commonality it stands to reason that institutional policies and practices that address the students' *needs* rather than his or her *ethnicity* would be effective not only in fostering tolerance among students but in retaining all students, be they minorities or non-minorities.

Because of the negative effect that exposure to a prejudiced campus climate brings to all students, our results suggest that broad-based policies and practices need to be implemented. One intervention method that appears most promising is education. Vogt's (1997) comprehensive review on tolerance led him to conclude that prejudice and discrimination are rooted in misconceptions rather than in personality traits. Because stereotypes can be overcome through information, college administrators can effectively diffuse racial tension on their campuses by creating a climate that fosters tolerance among students, faculty, and staff. Cultural awareness workshops, multicultural education in the curriculum, collaborative learning classroom practices, faculty training on cultural diversity, and culturally sensitive hiring practices are some of the strategies that can be used to enhance tolerance (Banks, 1993; Cabrera & Nora, 1994; Hurtado, Milem, Clayton-Pedersen, & Allen, 1998; Pascarella, Edison, Nora, Hagedorn, & Terenzini, 1996; Vogt, 1997). Cabrera and Nora (1994) recommend specificity when they suggest reducing acts of discrimination in college classrooms rather than addressing the campus climate as a whole. Targeting discriminatory behaviors at the classroom level has the advantage of being more easily monitored and addressed than dealing collectively with student perceptions. As noted by Pascarella et al. (1996), classroom-based intervention strategies need not be long in duration. Pascarella et al. (1996) found that even attending a one-day cultural awareness workshop enhanced students' openness to diversity. Moreover, classroom-based activities need not rest solely on a specialized curriculum on diversity. Chavez and Castañeda (1998) found that intervention strategies can be incorporated as part of the general curriculum. These researchers found that involving first-year business majors in experiential exercises based on sampling and discussing the cultural background of ethnic food enhanced their tolerance toward other groups.

Our results indicate that the adjustment to college by all students represents a complex process that links a student's motivations, attitudes, and abilities with institutional features. Enrollment management strategies patterned after this complex process would be more than likely successful. Unfortunately, most efforts that address negative campus climates are all but comprehensive. As noted by Hurtado et al. (1998), most diversity policies seek to increase the number of minorities based on the naive notion that interaction among ethnic groups would evolve naturally. However, merely increasing the number of minorities on campus without the benefit of a well thought out strategy is inherently dangerous; research on school desegregation shows that discrimination and racial tensions climb as the proportion of minorities to Whites increases (Blalock, 1982; A. W. Smith, 1981a, 19881b; Vogt, 1997).

One promising approach to overcome the problem of racial tensions is the notion of building learning communities in the classroom (Tinto, 1997). Tinto noted that the classroom is instrumental in promoting the academic and social integration of students. His studies indicate using practices that bring students together and providing a means for communication and interaction help to create a situation where learning is enhanced and acceptance of differences is cultivated. Moreover, Tinto believes that these positive attitudes will spill over to student interactions outside of the classroom.

Another promising approach rests on Vogt's (1997) recommendation of using cooperative learning as a way to further the growth of tolerance. At the core of Vogt's recommendation lie Allport's (1954) five principles for successful interaction among people from different ethnic backgrounds. Collaborative learning approaches meet three of the five conditions: (a) individuals collaborate rather than compete, (b) equal status among participants is promoted, and (d) the focus of the group effort is directed at solving projects.

Finally, Nora and Cabrera (1996b) note that support and encouragement in different forms and from different sources are compelling in their influence on a number of cognitive and non-cognitive outcomes. Nora and Cabrera (1996a) tested the impact of perceptions of discriminatory behavior as detractors of academic and social integration, as stressors negatively influencing academic achievement, and as instigators of withdrawal decisions. Although the effects of racist remarks and bigoted behavior exerted negative effects on all constructs, encouragement and support from significant others negated the deleterious impacts of perceived prejudice and discrimination. Words of encouragement and gestures of support by faculty and teaching assistants have also been found to positively affect student performance (grade point averages) and decisions to reenroll in college (Nora & Cabrera, 1996b; Nora & Wedham, 1991).

Notes

[1] The practice of relying on the chi-square as the sole criterion of model selection has been questioned in view of its sensitivity to sample size variations (see Bollen, 1989; Marsh, Balla, & McDonald, 1988). Instead, the literature suggests model selection be based on a careful examination of the overall pattern suggested by multiple measures of goodness of fit (for example, Bollen, 1989; Castañeda, 1993; Mulaik, et al., 1989).

[2] The GFI and the AGFI are measures of the relative amount of variance and covariance jointly accounted for by the model under consideration. The AGFI differs from the GFI by adjusting for the degrees of freedom. Values close to or above 0.90 signify a good fit (see Bollen, 1989).

[3] The RMR represents a measure of the average residuals when the covariances or correlations produced by the model under consideration are subtracted from the observed covariance or correlation matrix. Values of 0.10 or less indicate that the model yielded a close approximation of the data (see Bollen, 1989; Gerbing & Anderson, 1993).

[4] The NFI-2 or incremental normed fit index (Bollen, 1989) has been found to be less sensitive to sample variations (Anderson & Gerbing, 1988). Values close to or above 0.9 signify that the model represents a plausible representation of how the variables are associated to one another.

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Jerry A. Jacobs

Gender and the Stratification of Colleges

It has been twenty-five years since the United States Congress passed Title IX of the Education Amendments of 1972, which banned discrimination in education based on sex (Chamberlain, 1988).[1] Since that time, women have made substantial progress in terms of access to higher education. Women now constitute the majority of associate and other two-year degree recipients, the majority of bachelor's degree recipients, about half of master's and professional degree recipients, and nearly 40% of doctoral degree recipients. In terms of sheer numbers of degrees, then, women have more than attained parity with men. On the other hand, women are segregated from men in the fields of study they pursue. Differences in this aspect of education narrowed during the late 1960s, 1970s, and early 1980s but have stabilized since 1985. Female college graduates continue to trail their male counterparts in earnings (Jacobs, 1995, 1996a).

Another important aspect of gender differentiation in higher education is the distribution of women and men across institutions. Several studies have suggested that women are not equally represented at top-tier institutions (Hearn, 1990; Persell, Catsambis, & Cookson, 1992; Davies & Guppy, 1997). In this article I assess whether women have attained parity with men in terms of graduation from elite colleges. I draw on comprehensive data on degrees obtained from all institutions awarding bachelor's degrees. I examine gender differences in average school

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standing as well as graduation from elite schools. I also examine whether women have made progress relative to men since 1970 with respect to college ranking.

The Stratification of Colleges

As enrollment in college becomes more common, competition for status shifts to obtaining a degree from an elite school. College ranking is associated with later-life earnings. In other words, those obtaining their degrees at higher status institutions earn more on average than those obtaining their degrees at less prestigious schools. Pascarella and Terenzini (1991) review studies in this area and do not resolve the question of whether graduates of elite schools do better because of the effect of the schools or because of the greater selectivity of students. However, more recent studies, which often include careful controls, provide an accumulating body of evidence that college ranking does indeed affect subsequent student outcomes (Behrman, Rosenzweig, & Taubman, 1996; Kingston & Smart, 1990; James, Absalam, Conaty, & To, 1989).[2] Economists refer to these as "college quality" effects. Sociologists have suggested that, in addition to greater technical skills, these earnings effects may represent greater social skills or social networks, or they may simply reflect status certification effects (Ishida, Spilerman, & Su, 1997; Lee & Brinton, 1996; Useem & Karabel, 1990; Kingston & Lewis, 1990; Coleman, 1988; Bourdieu & Passeron, 1977). No matter what interpretation we may place on these findings, if women do not obtain their degrees at schools of equal stature to those of men, then they will not garner the same benefits from their college education as their male counterparts. As bachelor's degrees become more common, one would expect the distinctions among bachelor's degree recipients to become ever more salient. Indeed, some evidence suggests that in recent years the importance of college standing has increased (Daniel, Black, & Smith, 1997a, 1997b).

Gender Differences in College Standing

Hearn (1990) and Persell et al. (1992) report that women trailed men in access to elite schools, based on an analysis of data on 1980 high-school seniors. Hearn reports that 45% of students at top institutions were female, compared with 40% in moderately selective and 51% in non-selective colleges, based on his analysis of the High School and Beyond data. (Hearn defined elite schools as those with average SAT scores above 1,176 in 1980. See also Hearn, 1991, 1992).

Persell et al. (1992) defined selective schools as those where entering students had an average SAT score of 1050 or more. The average young woman graduating from a public high school was estimated to have a 4.2% chance of attending an elite college, compared with 5.8% for male students. Persell et al. (1992) also examined the college attendance patterns of graduates of elite boarding schools. Just as high a fraction of female as male graduates of these schools attended elite schools, but being female had a negative effect once other factors were controlled.

On the other hand, women have made progress since 1980, both in terms of overall enrollments in higher education as well as representation in elite institutions (Karen, 1991). Karen reports that the proportion of women at Ivy League schools rose from 22.5% in 1960 to 43.3% in 1986, and at other prestigious institutions (excluding the Seven Sister Schools) from 26.4% in 1960 to 46.7% in 1986.

The first question to be addressed in this article, then, is whether women trail men in the standing of the schools in which they obtain their degrees. I will assess whether there are gender differences in average school standing as well as in representation among elite schools. As we will see, the evidence suggests that there are modest differences between men and women that are consistent across a range of measures of school standing.

If there is a gender gap in school standing, this gap could be due to many different factors. Parents might be reluctant to spend as much on their daughters' educations as on their sons'; parents might favor sons because they hold traditional sex-role attitudes, such as those commonly found in developing countries (Kelly, 1989; Kelly & Slaughter, 1991; King & Hill, 1993) or in order to maximize the cumulative lifelong earnings of their offspring (Becker, 1981).

Contemporary evidence of greater parental investment in daughters over sons is scant (Behrman, Pollack, & Taubman, 1986). Steelman and Powell (1991) reported that parents were less willing to go into debt to pay for college expenses for their daughters than for their sons, but on four other measures of parental investments the gender differentials were not statistically significant. In another article Steelman and Powell (1989) reported that parents were more likely to contribute financial support to their daughters and provide them more money for college than they did their sons (perhaps because the daughters had less money in savings). Daughters were also less likely to report financial barriers as a reason for not attending college.

Evidence from the annual national freshman surveys suggests that freshman women receive as much financial support from their families as do men. In 1996, 82.3% of freshman women reported financial support from their families, compared with 79.7% of men. Women led men slightly in the proportion reporting at least $1,500 in parental financial support (59.3% versus 58.8%) (Cooperative Institutional Research Program, 1996). On the other hand, freshman women were more likely than their male counterparts to report "major" concern about financing their education and were more likely to indicate that low tuition was a very important factor in selecting their college (Jacobs & Kao, 1998). National data on student aid indicate that in 1993 women college students were slightly more likely to receive government grants and loans than were men, but the support levels were greater for men than for women (U.S. Department of Education, 1996, p. 324).

I was initially skeptical that there were gender differences at all in college status. My expectation was that gender differentiation was significant within institutions, in terms of the gender segregation of major fields of study, but I expected few if any gender differences in college status. Any gender effect on college ranking should also be evident in terms of college attendance rates. Because women are now the majority of degree recipients, I did not place much credence in the idea that parents were reluctant to invest in their daughters. Comparisons of recent cohorts show the steady progress of women to higher education (Alexander, Pallas, & Holupka, 1987; Mare, 1995). I expected similar progress for women in terms of college standing.

Institution Attributes and Gender Differentiation

When the evidence did suggest modest gender differences in representation among elite institutions, I developed and tested several institutional-level explanations of these differences. The explanations offered above focus instead on the traits individuals bring with them to college. Institutional explanations might help to account for the difference between women's steady progress in representation in higher education and persistent differences in college standing. A number of scholars, most notably Karen (1991), have stressed the role that institutions may play in shaping the social contours of education. Persell et al. (1992) discuss their findings in an institutional context as well.

The first institutional factor that might influence gender equity in college standing is the fields of study offered at different schools. Most research views college majors as differentiating men and women within schools, but not affecting the distribution of men and women across schools. This perspective assumes a university model where all or nearly all subjects are offered at all institutions. The inter-school aspect of majors became evident to me when I examined data on reports on admissions as well as enrollment from selected leading institutions published in 1995 in the now-defunct *Monthly Forum on Women in Higher Education* (see Table 1).

The data indicate that women are well represented among recent entering classes, except in schools that prominently feature engineering programs. Table 1 reproduces the *Monthly Forum* data on leading universities and leading liberal arts colleges. One conclusion that is immediately obvious from the university figures is that schools with large engineering programs often have substantial majorities of male students. The three institutions with less than 40% women among entering freshmen were CalTech, Johns Hopkins, and Carnegie Mellon, all schools well known for their engineering programs. On the other hand, of the 24 included in the *Monthly Forum* data, 13 had more than 50% women among entering students.

The representation of women among the top-tier liberal arts institutions was even more favorable. The lowest percentage female of the schools included in this list were Washington and Lee, with 41.9%, Claremont, with 44.9%, and Amherst, with 45.7%. Most of the others had a female majority, with Oberlin at 60.2% female, enrolling the largest percentage of women. Of the 20 schools listed (excluding the 3 all-female schools), 14 enrolled more than 50% women in the 1995 freshman class. Women seem well represented in these entering classes, apart from the schools that emphasize engineering education.

As we will see, engineering programs tend to be featured in schools that are more selective than average. Men's disproportionate representation in engineering programs thus places them in colleges that are above average in college standing. Schools of education, in contrast, tend to be located in colleges and universities with below-average standing. Thus, women's overrepresentation in education programs tends to pull down the average standing of the colleges in which they are enrolled.

Engineering and education programs tend to be offered in schools that feature a variety of other degrees. These may affect the distribution of men and women by shifting the balance of men and women students at different schools. A more extreme case of institutional specialization is the single-sex school, where degrees are offered only to men or women. I will also explore the extent to which single-sex institutions affect the distribution of men and women across colleges.

Part-time enrollment is a second institutional factor that influences the gender distribution of college standing. Over forty percent (41.7%) of undergraduate students enrolled in the fall of 1993 were attending college or university part time. Women are more likely than men to be enrolled in college part time. Women comprised the majority of part-time students (59.1%) (U.S. Department of Education, 1996).

TABLE 1

Admission of Women to Leading Universities and Liberal Arts Colleges, Fall 1995

ADMISSION OF WOMEN AT TOP-TIER* UNIVERSITIES FOR THE FALL OF 1995

Institution	Total Women Applicants	Total Women Accepted	Women Acceptance Rate	Total Men Applicants	Total Men Accepted	Men Acceptance Rate	Women Enrollees	Women Student Yield+	Women % of Freshman Class
Harvard	**	**	**	**	**	**	728	**	45.7%
Princeton	**	979	**	**	1,031	**	**	**	**
Yale	**	**	**	**	**	**	694	**	50.7
MIT	2,424	948	39.1	5,464	1,165	21.3	480	50.6	42.1
Stanford	7,433	1,495	20.1	7,957	1,412	17.7	867	60.0	53.6
Duke	7,295	2,074	28.4	7,142	2,050	28.7	842	40.6	52.0
CalTech	400	133	33.3	1,493	378	25.3	52	39.1	23.9
Dartmouth	**	1,113	**	**	1,257	**	525	47.2	50.0
Columbia	4,592	1,052	22.9	4,122	990	24.0	454	43.2	50.2
Univ. of Chicago	2,601	1,487	57.2	3,245	1,690	52.1	506	34.0	47.7
Brown	7,561	1,503	19.9	6,337	1,289	20.3	724	48.2	53.5
Rice	**	888	**	**	842	**	328	36.9	51.0
Univ. of Penn.	6,779	**	**	8,294	**	**	1,204	**	51.0
Northwestern	6,597	**	**	6,329	**	**	1,129	**	54.6
Cornell	**	**	**	**	**	**	1,483	**	46.3
Emory	**	**	**	**	**	**	698	**	54.7
Univ. of Virginia	9,467	3,546	37.5	8,428	3,000	35.6	1,576	44.4	53.9
Vanderbilt	4,342	2,520	58.0	4,537	2,632	58.0	790	31.3	48.3
Notre Dame	4,690	1,830	39.0	5,309	1,870	35.2	855	46.7	45.4
Washington	4,833	2,743	56.7	4,456	2,515	55.3	630	23.0	51.3

Institution	Total Women Applicants	Total Women Accepted	Women Acceptance Rate	Total Men Applicants	Total Men Accepted	Men Acceptance Rate	Women Enrollees	Women Student Yield+	Women % of Freshman Class
Univ. of Michigan	**	**	**	**	**	**	2,586	**	48.0
Johns Hopkins	3,551	**	**	4,324	**	**	343	**	38.3
Univ of Cal., Berkeley	11,497	4,348	37.8	11,283	4,419	39.2	1,703	36.6	49.1
Carnegie Mellon	3,361	1,886	56.1	6,946	3,747	53.9	395	20.9	30.7
Georgetown	6,991	1,514	21.7	5,884	1,335	22.8	756	49.9	52.9

*As rated by *U.S. News & World Report*. Colleges are listed in rank order.
**Declined to provide statistics to FWHE research department.
+Yield = percentage of accepted students who enroll.
Source: *FWHE* survey of college and university admissions offices.

ADMISSION OF WOMEN AT TOP-TIER* LIBERAL ARTS COLLEGES FOR THE FALL OF 1995

Institution	Total Women Applicants	Total Women Accepted	Women Acceptance Rate	Total Men Applicants	Total Men Accepted	Men Acceptance Rate	Women Enrollees	Women Student Yield+	Women % of Freshman Class
Amherst	2,502	487	19.5%	2,334	443	19.0%	192	39.4%	45.7%
Williams**									
Swarthmore	1,945	651	33.5	1,579	561	35.5	193	29.6	53.5
Wellesley	3,411	1,344	39.4	NA	NA	NA	586	43.6	100.0
Pomona	2,005	622	31.0	1,581	608	38.5	192	30.9	48.2
Bowdoin	2,092	660	31.5	2,030	593	29.2	231	35.0	50.5
Haverford	1,351	525	38.9	1,367	460	33.7	166	31.6	52.9
Davidson	1,538	529	34.4	1,521	522	34.3	223	42.2	51.6
Wesleyan	3,158	1,080	34.2	2,343	866	37.0	355	32.9	50.3
Carleton	1,547	763	49.3	1,119	678	51.9	235	30.8	49.8
Middlebury	2,091	786	37.6	1,727	581	33.6	320	40.7	51.9

TABLE 1 (*Continued*)

ADMISSION OF WOMEN AT TOP-TIER* LIBERAL ARTS COLLEGES FOR THE FALL OF 1995

Institution	Total Women Applicants	Total Women Accepted	Women Acceptance Rate	Total Men Applicants	Total Men Accepted	Men Acceptance Rate	Women Enrollees	Women Student Yield+	Women % of Freshman Class
Claremont	1,055	413	39.1	1,119	469	41.9	129	31.2	44.9
Smith	3,333	1,624	48.7	NA	NA	NA	651	39.6	100.0
Bryn Mawr	1,719	999	58.1	NA	NA	NA	340	34.0	100.0
Washington & Lee	1,619	439	27.1	1,827	635	34.8	188	42.8	41.9
Vassar**									
Grinnell	1,223	820	67.0	940	626	66.5	205	25.0	52.3
Colgate	2,988	1,213	40.1	3,017	1,022	33.9	385	31.7	50.7
Oberlin	2,267	1,729	76.2	1,461	962	65.8	417	24.1	60.2
Colorado	1,936	1,125	58.1	1,490	750	50.3	316	28.1	57.1
Bates	1,920	742	38.6	1,585	545	34.3	252	34.0	56.0
Trinity	1,478	911	61.6	1,576	830	52.7	247	27.1	48.4
Colby	2,108	**	**	2,111	**	**	308	**	52.9
Holy Cross	1,808	940	52.0	1,728	832	48.1	406	43.2	53.9
Bucknell	6,597	3,641	55.2	3,187	1,798	56.4	480	26.7	51.8

NA = Not applicable as college accepts only women.
*As rated by *U.S. News & World Report.* Colleges are listed in rank order.
**Declined to provide statistics to FWHE research department.
+Yield = percentage of accepted students who enroll.
Source: *FWHE* survey of college and university admissions offices.

SOURCE: Monthly Forum on Women in Higher Education, October 1995.

Women older than traditional college-age students represent the majority of part-time female students. More than one third (36.6%) of undergraduate students enrolled in the fall of 1993 were over age 24, including 17.1% of full-time students and 63.9% of part-time students. Women represent 60.2% of these older students, including 54.6% of those enrolled full time and 61.8% of those enrolled part time (U.S. Department of Education, 1996; see also Hearn, 1992). Thus, the majority of older students attending college are enrolled part time, and the majority of these are women.

Yet elite institutions tend to accept relatively few part-time students. On average, as we will see, the proportion of students enrolled part time is negatively related to the status of the institution. Women's overrepresentation among part-time students also tends to lower the status of the institutions in which they receive their degrees.

Some may view major field of study and part-time status as individual rather than institutional variables. There is indeed an element of choice in each of these areas. However, the relationship of these attributes to college standing is not a matter of individual choice. In other words, choosing a school that features a specialty in elementary education generally means choosing not to enroll in an elite institution. Similarly, deciding to enroll part time for all practical purposes means that most elite programs are off limits. The link between these offerings and college standing is an institutional arrangement that is featured in this research.

Another possible systemic explanation of women's underrepresentation at elite institutions is that standardized tests might be biased against women (Jacobs & Seliktar, 1998). Critics have charged that SAT scores underpredict women's performance in college (Wainer & Steinberg, 1992; Willingham & Coles, 1997). Some indirect evidence regarding the role of SAT scores in college assignment can be gleaned from the national freshman surveys. Freshman women were slightly more likely than men to be enrolled in their first choice school. Women on average applied to slightly fewer schools than men, but were accepted at slightly more of them (Cooperative Institutional Research Program, 1996). These data do not suggest that SAT scores have a detrimental impact on women, but they are not definitive, because they do not indicate the standing of the schools to which men and women apply.

I do not assess the predictive validity of SAT scores in this article, but I test the impact of SAT scores on school status indirectly. If other factors account for women's underrepresentation in elite schools, then we may conclude that tests biased against women do not cause the differential placement of women and men. (On the other hand, if tests are biased against women, then perhaps the removal of such biases might produce an even greater representation of women in elite institutions.)

A final possible institutional factor is the reluctance of high-status schools to admit too many women. Historical evidence from the early years of the twentieth century indicates that prominent schools such as the University of Chicago and Stanford put a lid on female enrollment for fear of becoming female-dominated schools (Solomon, 1985; Schwager, 1987). A recent article in the *Chronicle of Higher Education* (Gose, 1997) suggests that these concerns are reemerging in some private liberal arts colleges with majority-female enrollment.

Private colleges might be reluctant to admit too many women because they fear that it devalues their institution. College officials might also fear that female alumnae might contribute less than do male alumni, either because of their lower earnings or the tendency for family donations to go the schools that husbands attended. Title IX does not prevent private schools from taking sex into account as a factor in admissions. If there is a sex gap in school status that remains after relevant factors are controlled, then the possibility of institutional bias in admissions against women would have to be considered. This does not appear to be the case in Table 1, but we will reserve judgment until the analysis is complete. The second goal of the article, then, is to assess the role of these institutional factors in explaining gender differences in graduation from elite schools.

Data and Methods

I examined the distribution of men and women among colleges with data on earned degrees conferred. The data were assembled by the Department of Education in the HEGIS database.[3] They have been made accessible to researchers on line via the CASPAR system.[4] These data have many virtues: they represent a comprehensive accounting of all degree recipients, they are available annually during the period 1966–1993, and they allow for analysis between schools as well as variation by major within schools. The analysis presented here develops a clear picture of the relationship between gender and college degree attainment.

There are also important limitations to these data that must be noted: they pertain to college-degree recipients and thus do not directly examine college entrance or the college experience per se. These results would be misleading with respect to college entrance if men's and women's completion rates differed sharply. These data also do not allow us to control for individual attributes in the college selection process. In that sense, we are unable to determine whether women and men are being placed into college and universities in relation to their abilities, their social backgrounds, or according to other factors. As a result, we are unable to assess whether gender has a net effect on the process of selection into elite schools. Nonetheless, it is useful to have an assessment of the association between gender and college stratification, even if the process has not been fully explicated.

I began selecting colleges from the 3,867 academic institutions included in the CASPAR database for 1993. I then excluded 1,338 two-year institutions, based on the Carnegie classification system. Of the 2,529 remaining schools, 770 granted no bachelors degrees in 1992, leaving 1,759 schools.[5]

Women are overrepresented in two-year institutions, and the exclusion of these schools could be seen as affecting the results presented here. I excluded two-year institutions for both practical and theoretical reasons. Data on college selectivity is not readily available on the large number of two-year institutions. Thus, as a practical matter, including these schools in the analysis would have been difficult, if not impossible.

On theoretical grounds, I consider two-year institutions to be a separate level of higher education worthy of study in its own right and with its own substantive issues. (Master's, professional, and doctoral programs are also excluded from the analysis on the grounds that these represent different levels of higher education that need to be studied in their own right). Two-year schools incorporate both terminal and transfer degree programs. Their academic and vocational programs are highly segregated by sex (Jacobs, 1985). High rates of attrition and low rates of transfer to four-year schools are among the many important issues that need to be examined for two-year schools. These topics are different in degree and in kind from those confronting four-year institutions and from the issues examined here.

It should be noted that the impact of two-year schools on the bachelor's degree attainment process is indirectly included in this analysis. If women are more likely to enroll in two-year programs and then transfer to four-year schools than are men, and if this process channels women into less elite institutions, then this outcome will be reflected in our analysis of college graduates. The data examined here will not pinpoint this process as the cause of the gender differential, but it will incorporate it as part of the overall assessment of gender and college stratification.

I merged a variety of data on college rankings with the CASPAR data on degrees earned. These data were obtained from the 1991 *U.S. News and World Report* data on colleges. The measures I employed included: average SAT scores, acceptance rate, percentage of faculty with PhDs, student/faculty ratio, graduation rate, first-year retention rate, in-state tuition fees, and percentage enrolled part time.[6]

The *U.S. News* data are useful because they include such a wide range of measures of school standing. The principal drawback is that data are missing for smaller schools. For example, nearly one quarter of the schools (23.9%) were missing data on SAT scores. These schools are, on average, among the less prominent institutions. If women were overrepresented at such schools, then our results on gender inequality would be understated. Fortunately, for the sake of this analysis, gender disparity in attendance at such schools is quite small. There is less than a one percentage point difference between women's and men's concentration in the missing schools (12.7% of women versus 11.9% of men). Schools with missing SAT data are smaller than the average institution, and thus the fraction of degree recipients missing from our analysis is smaller than the fraction of missing schools. I conducted additional analyses (described below) using more comprehensive SAT data from another source for an earlier year and am reassured that the results presented below are not affected by the problem of missing data.

The analysis proceeds as follows. First, I compared the distributions of men and women across institutions. I calculated an index of dissimilarity to discern what fraction of men or women would have had to change schools in order to be distributed in the same manner as the other sex. Second, I weighted schools by the number of men and women to determine whether men and women attended schools of equal standing. Third, I estimated a series of ordinary least squares regression equations with school characteristics as predictors to determine whether the gender differences in school standing could be explained. Finally, I calculated a series of logistic regression equations that attempted to explain gender differences in graduation from elite schools.

Results

1. Sex Segregation Between Schools

There were 72 schools with only male graduates, nearly all schools offering religious instruction, with VMI, Citadel, and a few engineering and technical schools comprising the balance. Only 3,375 men received degrees at these schools, 0.6% of male bachelor's degree recipients. Another 42 schools graduated only women, which included 8,437 graduates (which represented 1.3% of women bachelor's degree recipients that year). Single-sex schools by themselves are responsible for very little segregation by sex between institutions.

Overall, in 1993, 14.5% of women would have had to change schools in order to be distributed in the same manner as men. Although this figure is somewhat higher than I expected, it is low relative to most measures of segregation. For example, the level of segregation by sex by major within schools is twice as high as segregation across schools (D = 30; Jacobs, 1996b). Also instructive is to compare sex segregation to racial segregation across schools. Calculated with the same data for the same year, 40.2% of African-Americans would have to change colleges or universities in order to be distributed in the same manner as whites (Jacobs, 1996b).

2. *Gender and College Standing*

Were women concentrated in low-status schools in 1993? Table 2 presents means of these indicators, weighted by the distribution of male and female degree recipients. In 1993 women remained in slightly lower status institutions than their male counterparts. The differences between men and women were not great, but they were consistent across a wide range of measures that are indicative of institutional status or quality. Women, compared to men, receive degrees from institutions with slightly higher acceptance rates, higher student/faculty ratios, lower standardized test scores, and lower fees. Though I expected the narrowing of the gender gap in institutional ranking described by Karen to have eliminated any remaining differences by 1993, this expectation was not borne out in the data.

The sex gap in college status documented in Table 2 can be explained by two factors: (1) the relative scarcity of women in schools with large engineering programs, because engineering programs are typically male-dominated and tend to be more selective than higher education on average; and (2) the tendency of women to enroll in school part time, because lower-status institutions are more likely to accept part-time students.

I hypothesized that institutional factors such as engineering enrollment would help to explain the gender differential in representation in high-status institutions. This hypothesis assumes that men comprise the majority of engineering students and that these programs are disproportionately represented in high-status institutions. The same logic—applied in reverse—would hold for part-time enrollment and schools of education. If these institutional factors contribute to women's representation in lower-status institutions, then it must be the case that women are overrepresented in them and that they are concentrated in lower-status institutions.

Evidence on these points is presented in Table 3. Engineering programs are indeed concentrated in above-average institutions. The correlation between the proportion of students obtaining their degrees in engineering and the average SAT scores of the institution in 1993 was

TABLE 2

Sex Differences in College Rankings, 1993

	Women Mean (*SD*)	Men Mean (*SD*)
Average SAT	961.3 (191.1)	979.4 (154.9)
Percent in schools with mean SAT over:		
1200	4.5 (29.9)	7.0 (28.6)
1100	14.0 (49.7)	17.4 (42.5)
1000	37.8 (69.5)	43.3 (55.6)
Acceptance rate	71.3 (22.8)	70.7 (18.8)
First-year retention rate	77.3 (16.3)	78.1 (12.8)
Graduation rate	48.6 (25.7)	49.9 (20.3)
Percent of faculty with PhDs	77.0 (22.8)	78.2 (18.0)
Student/faculty ratio	16.4 (6.7)	16.2 (5.4)
In-state tuition fees	$4520.9 (6146.9)	$4610.5 (4978.5)
Percent enrolled part time	20.3 (21.5)	18.8 (16.0)

All female/male differences are statistically significant, $p < 0.01$.

TABLE 3

Engineering, Education and Part-time Enrollment by Average SAT Score at College or University

Average SAT Score (*n* schools)*	Percent of Students Enrolled in Engineering	 Enrolled in Education	 Enrolled Part Time
1200+ (64)	14.1%	0.4%	3.6%
1100–1199 (95)	7.9	4.1	8.9
1000–1099 (206)	5.3	7.1	14.1
900–999 (322)	2.4	12.1	21.7
800–899 (335)	1.4	15.3	26.0
Less than 800 (204)	1.0	18.2	24.9
SAT missing (533)	1.7	10.4	31.1
Correlation with SAT	0.28	–0.41	–0.36

*The number of schools for part-time enrollments are 43, 80, 192, 314, 325, 185 and 72.

moderately strong ($r = 0.28$). Education programs, in contrast, were concentrated in lower-status institutions. The correlation between the proportion obtaining their degrees in education and the average SAT score of the institution was negative ($r = -0.41$). Women in 1993 obtained three-quarters (76.9%) of the education degrees, and men garnered five-sixths (84.1%) of the engineering degrees. Thus, women's concentration in education would be expected to lower the average standing of the schools in which they attained their degrees, whereas men's concentration in engineering would be expected to raise their average school ranking.[7]

Part-time enrollment is also inversely related to college standing. The correlation between average SAT score and the percentage enrolled part time was negative ($r = -0.36$). Only 3.6% of students in elite schools (those with combined average SAT scores of 1200 or better) were enrolled part time, whereas over 20% of those attending schools with average combined SAT scores of 900 or less were enrolled part time.

Table 4 presents several regression equations which demonstrate that these two factors account for the sex gap in college quality. I present several nested comparisons. In the first equation, the percentage female in a school is the sole independent variable. In the second equation, I add the percentage of students receiving their degrees in engineering. In the third equation, I add the percentage of students enrolled part time.

In the first set of equations, average SAT score is the dependent variable. The first equation shows that women trail men in this measure of college standing. The effect is cut from 28 points to less than 13 points when the proportion of engineering majors is controlled. When the proportion of part-time students is added to the analysis, the gender gap in SAT scores declines to less than 10 points, and the differential is no longer significant.[8]

The proportion enrolled in education has a negative effect on a school's average SAT score. The size of this effect is somewhat larger than that observed for engineering, but it is in the opposite direction. However, education enrollment does not explain as much of the sex differential in average SAT score as does engineering enrollment. Adding education to the final model reported in Table 4 does not significantly change the other results reported there.[9]

In the second set of equations, similar findings for acceptance rates are presented. In this case, engineering has relatively little effect, whereas part-time enrollment is the principal factor that accounts for the sex differential. In this analysis, as in the case of the average SAT score, the sex differential is no longer statistically significant after these two factors are accounted for. The analysis of graduation rates is even more

TABLE 4

Regression Analysis of Sex Gap in College Rankings

	Dependent Variable: Average SAT		
Predictors	Model 1	Model 2	Model 3
Intercept	1075.11***	1010.93***	988.58***
	(16.03)	(18.88)	(17.73)
Percent female	−2.46***	−1.51***	−0.23
	(0.31)	(0.29)	(0.27)
Percent engineering		2.62***	2.98***
		(0.42)	(0.40)
Percent part time			−2.77***
			(0.22)
R^2	0.06	0.09	0.18

	Dependent Variable: Acceptance Rate		
Predictors	Model 1	Model 2	Model 3
Intercept	67.32***	68.53***	72.07***
	(1.86)	(2.20)	(2.17)
Percent female	0.12***	0.10**	0.01
	(0.03)	(0.03)	(0.04)
Percent engineering		−0.05	−0.01***
		(0.05)	(0.05)
Percent part time			.12***
			(0.03)
R^2	0.01	0.01	0.02

	Dependent Variable: Graduation Rate		
Predictors	Model 1	Model 2	Model 3
Intercept	55.96***	51.90***	48.86***
	(2.10)	(2.48)	(2.46)
Percent female	−0.10***	−0.04	0.12**
	(0.04)	(0.04)	(0.04)
Percent engineering		0.17***	0.20***
		(0.06)	(0.06)
Percent part time			−0.32***
			(0.03)
R^2	0.01	0.01	0.11

$^{*}p < 0.05$. $^{**}p < 0.01$. $^{***}p < 0.001$.

striking. The sex differential disappears for graduation rates once engineering and part-time enrollment are controlled in the multivariate analysis.

I conducted similar analyses for each of the measures of college standing presented in Table 2, and the result was always the same: gender differences in each of the outcome measures were initially evident but became attenuated and eventually failed conventional tests of statistical significance once the control measures were added to the analysis.

I was especially interested in the SAT score differential, because earlier studies relying on SAT scores found women underrepresented in elite schools. The analysis of the sex gap in SAT scores presented in Table 4 showed that sex difference in school means could be accounted for by the two variables examined, percentage enrolled in engineering and percentage enrolled part time. However, this similarity in means could be consistent with women's underrepresentation at the high end of the distribution, namely elite schools. I sought to replicate more closely the research of Hearn and Persell by using cutoff scores for elite schools. I used several measures in order to determine whether the results were sensitive to particular cutoff values. Thus, I defined elite schools as those with an average SAT score of 1200 or better, 1100 or better, and 1000 or better.

I conducted regression analyses that parallel those presented in Table 5. However, the dependent variable now is a dichotomous measure. Each school is scored 1 if it is above the cutoff value, and 0 otherwise. As a result, it is appropriate to use logistic regression analysis rather than ordinary least squares regression. Instead of presenting R^2 as measures of explanatory power of these equations, I switch to the proportion reduction in chi-squared (I used L^2, or the log-likelihood measure of chi-squared as my indicator.) These results are presented in Table 5.

The substantive result is the same here as was evident in previous analyses: once the percentage of students receiving degrees in engineering and the percentage of students enrolled part time are controlled, the relationship between sex composition and elite status is severely attenuated and fails the conventional test of statistical significance. This finding is robust for the three cutoff values employed.

Engineering and education are among the few programs that significantly alter the distribution of men and women across schools in terms of selectivity. They serve to segregate men and women within schools and also inhibit women's ability to attend and graduate from competitive institutions. The fact that engineering works to segregate men and women both within and between schools highlights the usefulness of examining both of these aspects of gender differentiation.

Time Trends in School Status

These results made me curious regarding trends in women's representation in elite schools. Was the difference from Hearn (1990) and Persell et al. (1992) due to women's growing representation in colleges and universities and a growing acceptance of women's elite status? After all, Yale, Princeton, Dartmouth, and other elite schools remained exclu-

TABLE 5

Logistic Regression Analysis of Sex Gap in Elite College Degrees

	Dependent Variable: SAT 1200+		
Predictors	Model 1	Model 2	Model 3
Intercept	0.11 (0.38)	-0.38 (0.93)	-0.31 (0.79)
Percent female	-0.06*** (0.01)	-0.05*** (0.01)	-0.017 (0.014)
Percent engineering		0.01 (0.01)	0.04*** (0.01)
Percent part time			-0.29*** (0.05)
% Reduction in L^2	0.11	0.11	0.35

	Dependent Variable: SAT 1100+		
Predictors	Model 1	Model 2	Model 3
Intercept	-0.79*** (0.33)	0.14*** (0.42)	-0.006 (0.52)
Percent female	-0.05*** (0.01)	-0.04*** (0.01)	-0.013 (0.009)
Percent engineering		0.02* (0.01)	0.03*** (0.01)
Percent part time			-0.13*** (0.02)
% Reduction in L^2	0.08	0.08	0.22

	Dependent Variable: SAT 1000+		
Predictors	Model 1	Model 2	Model 3
Intercept	1.61*** (0.29)	0.83*** (0.35)	0.70*** (0.38)
Percent female	-0.03*** (0.01)	-0.03*** (0.01)	-0.012 (0.006)
Percent engineering		0.03*** (0.01)	0.04*** (0.01)
Percent part time			-0.07*** (0.01)
% Reduction in L^2	0.06	0.07	0.16

*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

sively male until the late 1960s. Perhaps some trace of this legacy remained in 1980 and was captured by these earlier analysts. In other words, I sought to determine whether the difference in results was due to changes in opportunities for women over time, or whether it could be attributed to different methodologies.

In Table 6, I present the school average SAT score for women and men for three years: 1970, 1980, and 1993. I also present the percentage of students in elite schools, with three different cutoff values used to de-

TABLE 6

Sex Differences in SAT Scores, 1970, 1980, and 1993

	1970		1980		1993	
	Women	Men	Women	Men	Women	Men
Mean school SAT	960.9	981.9	974.1	988.2	961.3	979.4
(*SD*)	(137.4)	(149.3)	(150.2)	(143.9)	(148.9)	(154.9)
Percent in schools with mean SAT over:						
1200	4.1	7.6	5.5	7.7	4.5	7.0
1100	14.4	18.5	16.4	18.9	14.0	17.4
1000	35.6	43.1	40.0	45.0	37.8	43.3

fine elite status. I applied 1991 SAT scores to all the years examined. This analysis thus holds the standing of schools in terms of the SAT scores constant and only considers the shifts of men and women across these institutions.[10]

The results indicate that between 1970 and 1980 women did indeed narrow the gap in representation in the elite schools. When elite schools are defined as those with average combined student SAT scores of 1200, the percentage of men in elite schools was more than twice that of women in 1970 and narrowed to a 2.6% differential by 1980. However, between 1980 and 1993 the gender differential did not narrow further but actually grew slightly. Consequently, the differences between my results and those reached by Hearn (1990) and Persell et al. (1992) are not due to changes in women's opportunities in the period 1980 to 1993 but are due to differences in the data examined and the methods employed.

This conclusion is further supported by the analysis presented in Table 7. Here, I extend the logistic regression analysis to 1970 and 1980. The results indicate that even in 1970, engineering and part-time status were the principal factors accounting for women's underrepresentation in elite schools. In 1970 and 1980 the percentage female had a slight positive effect on the average SAT score of a school, net of other factors. For all three periods—1970, 1980, and 1993—engineering and part-time enrollment account for the gender differential in degree attainment in elite schools. In other words, the effect of the percentage female is not statistically significant once these factors are controlled.[11]

Conclusions

The results presented here partly confirm those reported by Hearn (1991) and Persell et al. (1992). The data indicate that women do indeed graduate from colleges and universities with lower school standings than

TABLE 7

Logistic Regression Analysis of Sex Gap SAT Scores, 1970, 1980, and 1993

	Dependent Variable: Average SAT		
Predictors	1970	1980	1993
Intercept	988.34*** (8.85)	966.70*** (11.59)	988.58*** (17.73)
Percent female	0.32* (0.16)	0.52* (0.20)	–0.23 (0.29)
Percent engineering	2.53*** (0.31)	2.59*** (0.31)	2.98*** (0.40)
Percent part time	–3.54*** (0.23)	–3.21 (0.21)	–2.77*** (0.22)
R^2	0.23	0.22	0.18

	Dependent Variable: SAT 1100+		
Predictors	1970	1980	1993
Intercept	–0.32 (0.27)	–0.79*** (0.37)	–0.31 (0.79)
Percent female	–0.003 (0.005)	0.003 (0.007)	–0.017 (0.014)
Percent engineering	0.03*** (0.01)	0.04*** (0.01)	0.04*** (0.01)
Percent part time	–0.15*** (0.02)	–0.13*** (0.02)	–0.29*** (0.05)
% Reduction in L^2	0.24	0.22	0.35

do their male counterparts. These differences are modest in size but are consistent across a wide range of measures, including lower SAT scores and other indicators of school ranking. These differences narrowed during the 1970s but have remained quite constant since 1980.

The findings reported here, however, modify the conclusions offered by Hearn (1991) and Persell and her colleagues (1992) by identifying institutional sources of these differentials. The concentration of male-dominated engineering programs at selective institutions is one major reason for the gender gap in school standing. A second important factor is the concentration of part-time students, who are mostly women older than traditional-age college students, in below-average institutions. The combination of these factors explains the entirety of the gender gap in every measure of school standing employed in this study.

This study points to programs such as education and engineering that are differentially located across institutions that are skewed in their gender composition and that contribute to the gender differential in college standing. This finding raises a series of questions, namely why engineering programs are located at more selective institutions and why education programs are located at less selective schools. Jencks and Reisman

(1968) survey the development of institutions of higher education and note the very different origins of professional instruction in education and engineering. Undergraduate education programs evolved out of normal schools and later became state colleges and sometimes universities. Schools devoted to producing teachers thus started out at the lowest rungs of tertiary education and only gradually achieved a degree of acceptance and respectability. Elite private institutions shunned teacher instruction, only sometimes to add graduate-level programs in education. In contrast, engineering schools began as part of the large land-grant institutions and were associated with elite universities dating back to the nineteenth century. Engineering was relatively well-funded and was linked intellectually to the physical sciences. The difference in status between engineering and education programs, then, has a long history, dating back to the early evolution of higher education in the United States.

But is gender itself partly responsible for these different institutional linkages? In other words, was it easier for engineering to connect with high-status institutions because its faculty and students were predominantly male? Engineering was easier to assimilate in high-status schools because of its close links to the physical sciences and because of the lucrative research support available. In contrast, education was seen as having less of a distinct intellectual basis and produced lower-status professionals (Jencks & Reisman, 1968). One could view elite institutions as interested in maintaining their status and not directly concerned with gender per se. Nonetheless, recent studies suggest that the status of the education profession and its location in institutions of higher education cannot be separated from the gender of its students and practitioners (Preston, 1998; Herbst, 1989). This is a topic that deserves further attention.

A related issue is why these programs continue to be so imbalanced in their gender composition. In other words, why are fields like engineering so male-dominated and fields like education so female-dominated? On this question, much research has been conducted (Tang & Smith, 1996; McIlwee & Robinson, 1992; Brush, 1991). For about twenty years, from the mid-1960s through the mid-1980s, fields of study in higher education were growing increasingly integrated by gender, principally because women steadily entered fields that had previously been dominated by men. There was relatively little change in the sex-composition of female-dominated fields such as education. However, since about 1985 the momentum toward gender integration has stalled, and a plateau has been reached (Jacobs, 1995). For example, women increased their representation in engineering from less than 1% in 1970 to until they reached about 13.2% in 1985. This level has hardly increased since that time. Thus, the gender differential in college status due to the gender segregation of fields of study will likely continue in the immediate future.

Another contributing factor to the gender differential in college standing is women's overrepresentation among part-time students. This is also a topic that deserves much additional study. We know that women are more likely to return to college as adults than are men, and we know that these returning students are much more likely to be women (Jacobs & Stoner-Eby, 1998). But there is much more to be learned here. It would be useful to have a clear explanation for the gender differential in part-time enrollment. It would be helpful to know whether part-time enrollment for women is a constrained choice that channels them into lower-status schools, reduces their chances of completion, and produces more limited economic benefits from the college degree. On the other hand, it is also possible that part-time enrollment provides the opportunity for college enrollment on the part of women who would not otherwise have had the chance to attend college. Part-time enrollment may well contribute to women's overall advantage in college degree completion. Of course these alternatives may not be mutually exclusive—part-time enrollment could be helpful to some women while constraining to others.

These results indirectly bear on the issue of gender bias in SAT scores. An unexplained gender differential could be attributed to gender bias in SAT scores, yet the data indicate that the gender gap in the average school SAT score can be explained by the institutional factors cited above. This does not mean that the SAT scores are gender neutral. It does, however, suggest that whatever biases there are in SAT scores, they do not currently constitute an insurmountable obstacle in obtaining access to high-status institutions. Of course, if changes in SAT scores designed to improve their predictive validity were to raise women's scores relative to men's, then women's representation in elite institutions might well improve further.

We do not need to speculate on whether selective schools are attempting to cap the number of women enrolling, because the gender gap in college status was explained by other institutional factors. However, the data described here pertain to 1993 graduates, and more recently some private schools may be attempting to bolster men's enrollment when women's representation is perceived to be too high. Continued attention to this issue is in order.

These results also indirectly reflect on the issue of parental investments in daughters and sons. If there had been a significant unexplained gender differential in school standing, parents' unwillingness to offer financial support would have been a leading explanation. But there was no significant unexplained gender differential. Consequently, the results presented here do not offer support to the contention that parents are less willing to invest in their daughters compared with their sons. Further direct examination of the finances of undergraduates and the role that financial considerations play in their schooling decisions is warranted.

Discussion

A great deal of research assumes that gender is an ascriptive factor that plays a role similar to that of race, ethnicity, and social class background in restricting educational choices and limited educational outcomes (Davies & Guppy, 1997; Hearn, 1992). But gender differs fundamentally from these other factors in that the family origins of men and women are similar. Education has been one of the areas in society in which women have made the most progress. Yet important obstacles remain, including differences in fields of study, low financial returns to schooling, and limited success of women in obtaining faculty positions in many fields and in elite institutions, among others. However, we should not expect all areas to show gender differentials. One of the goals of gender research in education should be to explain how a wide range of subtle and not-so-subtle obstacles for women coexist with relatively high enrollment rates, high grades, and high graduation rates. Indeed, one of the goals of this article is to explain how women continue to trail men in the average standing of the school they attend despite women's continued advances in undergraduate graduation rates.

I expect the gender gap documented here to continue in the coming years because the underlying factors have shown little movement. There has been relatively little change in women's representation in engineering in recent years. Students beyond the traditional age of college students continue to grow as a fraction of undergraduate enrollment, and this group continues to be disproportionately female. Thus, women may well continue to trail men in the ranking of their colleges and universities despite their continued progress in garnering a growing majority of bachelor's degrees.

These findings extend our understanding of the gender segregation of college majors. The findings indicate that gender-typed majors are not simply part of the landscape within colleges but also help to shape the stratification of schools themselves. Thus, majors have both within-college and between-college effects.

A final implication of this study is in the area of research on the economic returns to college. Because the size of programs such as engineering and education are related to the average SAT score of institutions, studies that ignore college major will likely obtain biased estimates of the effect of college ranking on earnings.

Notes

[1] See Fishel and Pottker (1977) for a discussion of alternative versions of educational equity legislation under consideration when Title IX was enacted and the National Organization for Women (1977) for a discussion of inadequate implementation and enforcement.

[2] There are complex technical issues regarding the adequacy of controls for unmeasured characteristics, both of individuals and schools. For example, Behrman, Rosenzweig, and Taubman (1996) did not control for major, and consequently they may have imputed to school "quality" effects that were instead a result of the covariation between majors and school ranking discussed below. Nonetheless, my view is that preponderance of evidence supports the conclusion that college ranking does indeed influence student outcomes.

[3] HEGIS stands for the Higher Education Graduates Information System.

[4] CASPAR stands for the Computer Aided Science Policy Analysis and Research Database System. Prepared by the Quantum Research Corporation of Bethesda, MD, CASPAR makes HEGIS data available through an on-line computer server system.

[5] There are several definitions of two-year schools in the CASPAR data, based on "Institutional Class" or "Highest Degree Awarded," in addition to the Carnegie definition. These definitions vary substantially.

[6] I want to thank my colleague Kermit Daniel of the Wharton School of Management at the University of Pennsylvania, who generously provided me with these data.

[7] In addition to education and engineering, I examined the full set of 29 majors available with these data to determine the effect of the gender distribution of these majors on the status of schools. The inclusion of other majors does not substantively change the results presented here. That is because most other fields of study are either found at a broad spectrum of schools, are not highly gender typed, or are not concentrated in high-status or low-status institutions.

[8] The data include all degree recipients, and consequently the standard issue of generalizing from a sample to the population does not apply here. However, in the multivariate analyses I treat the data as a sample with 1500 cases and use conventional measures of statistical significance as one measure by which results can be judged to be substantively important.

[9] I examined the problem of missing data by substituting 1982 SAT data from the UCLA Higher Education Research Institute for the missing schools. For schools with available data in both years, the SAT measures had nearly identical means (931.6 vs. 933.4) and were very strongly correlated ($r = 0.88$). The substantive pattern of results presented in Table 4 do not change. Regression results are available from the author.

[10] The relative standing of schools is quite stable over time. For example, the correlation of SAT scores calculated 10 years apart is 0.93 (author's calculation, using SAT data from 1973 and 1982). I relied on the *U.S. News* data for one year for consistency and to minimize the problems of missing data.

[11] I replicated these results using 1973 SAT data for 1970 and 1982 data for 1982, and the results closely match those reported here. Regression results are available from the author.

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Jonathan Knight
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Faculty Conduct

An Empirical Study of Ethical Activism

In the last ten years or so, the academic profession has been the subject of a good deal of suspicion and criticism. While some of what has been written about academics is shallow and splenetic (Sykes, 1990; Kimball, 1990; D'Souza, 1991), even this literature has tapped a sense of disquiet about the integrity of faculty members. Central to much of the criticism and suspicion is faculty misconduct, real or perceived. For several writers and researchers, instances of misconduct that have reached the public's attention, such as plagiarism (Mallon, 1989; Fass, 1990; Mooney, 1992; LaFollette, 1992) and sexual harassment (Dziech & Weiner, 1984; Davis, 1990; Small, 1990), are the visible signs of still-to-be revealed misdeeds of unknown but substantial dimensions, and commentators imply that faculty and their institutions either turn a blind eye to numerous other instances of malfeasance or suppress knowledge of them (Chubin, 1983; Cahn, 1986; Ghiselin, 1989; Caplan, 1993; Paludi, 1996). Others argue that faculty misconduct is infrequent, or suggest that the self-correcting mechanisms of the profession are reasonably effective in preventing misconduct or in punishing the relatively few individuals who are guilty of wrongdoing (Koshland, 1987; Merton, 1988).

Our concern is with one aspect of faculty behavior: the likelihood that a professor who is told that another faculty member may have engaged in unprofessional behavior will take up the matter with the accused or with an administrator. These are instances of what can be described as ethical activism, a willingness to inquire about or to protest possible un-

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ethical conduct. At what point and how faculty members interfere in faculty disputes mirrors controversies in the broader society about the "civic failure to stop private and public acts of injustice" (Shklar, 1990, p. 6). Shklar writes, "As citizens we are passively unjust . . . when we do not report crimes, when we look the other way when we see cheating and minor thefts, when we tolerate political corruption, and when we silently accept laws that we regard as unjust, unwise, or cruel" (1990, p. 6). Do professors engage in, to borrow a phrase from Shklar (1990, p. 6), "preventive civic activity" on their campuses with respect to faculty misconduct, and if so, what kinds of action do they take and under what circumstances? What demographic characteristics (e.g., gender and age) and what professional characteristics (e.g., academic rank, years in the profession, and service on an ethics committee) of faculty members help account for their ethical activism? To answer these questions, we use data from a large-scale national study of ethics and the academic profession that explored the attitudes of faculty members toward ethical standards and their experiences with particular ethical problems.[1]

Background: Is There an Obligation to Intervene?

Consider the following situation. A student complains to a professor that a faculty member has been sexually harassing her. The professor finds the student's account plausible and encourages her to speak with the department head. The student is unwilling to do so because she fears that she might jeopardize her academic career: the department head and the faculty member she has complained about are research collaborators, and her own research requires her to work with the department head. As an alternative to raising the issue with anyone else, the student looks to the professor for support. The professor wonders whether to speak with the other faculty member. How likely is it that the professor will take this step?

For some professors, speaking with the colleague will pose no problem. They are willing to do so on behalf of a student concerning an obviously important matter. Other professors, however, may find themselves under cross-pressures. They want to be of further help to the student, but speaking with a colleague about alleged misconduct is neither personally nor professionally an easy thing to do and may earn the enmity of the colleague. Of course, the intensity of the cross-pressures can vary as elements in the imaginary situation are altered. For example, a senior professor might have few or no reservations about talking with a junior colleague, whereas the latter might conclude that approaching the former would at best be fruitless and at worse endanger one's own career.

The considerations that could affect a professor's decision regarding the student's problem underscore an enduring problem in ethics: that it is easier to identify and enjoin an ethical wrong than it is to prescribe affirmatively what ought to be done by an individual to protest a wrong. Cicero wrote that we can "judge with ease" one's duty when faced with the injustice of an injury being imposed upon another, but immediately followed this assertion with a discussion of the circumstances in which the "actions that seem most worthy of a just man . . . undergo a change, and the opposite becomes the case" (Griffin & Atkins, 1991, pp. 12–13). Clearly, our imaginary professor should listen sympathetically to the student and offer her encouraging advice. But is the professor obliged to become, in effect, her paladin?

If a similar question were asked of lawyers or physicians, the answer, according to the codes of ethics of these professions, would be yes. Lawyers who believe "that another lawyer has committed a violation of the Rules of Professional Conduct that raises a substantial question as to that lawyer's honesty, trustworthiness or fitness as a lawyer in other respects shall inform the appropriate professional authority" (Gorlin, 1986, p. 81). Physicians "should expose, without fear or favor, incompetent or corrupt, dishonest or unethical conduct on the part of members of the profession" (Gorlin, 1986, p. 124). Not surprisingly, these calls for action to lawyers and physicians have not stilled controversies in the respective professions about a duty to report the alleged misconduct of a fellow practitioner (American Bar Association, 1989, pp. 101, 201–101, 206; Morreim, 1993). But some codes of professional ethics are more circumspect about an obligation to report misdeeds. For example, the *Code of Ethics for Engineers* states, "Engineers having knowledge of any alleged violation of this Code shall cooperate with the proper authorities in furnishing such information or assistance as may be required" (Gorlin, 1986, pp. 184–185). Other codes of professional ethics simply say nothing about whether one has an obligation to report misdeeds. This is the case with the *Statement on Professional Ethics* issued in 1966 by the American Association of University Professors (1987, p. 37). It addresses the obligations of professors to their disciplines, students, colleagues, institutions, and communities but is silent on speaking out about the misconduct of professors.

Controversies about taking action with respect to another professional's alleged wrongdoing or reticence about doing so are probably explained by the ambivalent nature of the act of protest: it can be (and has been) construed as the ethically right thing to do, as disloyalty to the individual or a group, or both. One measure of the ambivalence is that it is rare for the members of any profession to be charged with ethical misconduct on grounds that they have failed to protest or report the misconduct of others. The scarcity of these charges may reflect, in some part, the difficulty in establishing why a particular action is not taken, but more fundamental, we suggest, is the uncertainty as to whether a failure to act is itself an ethical transgression (Swazey & Scher, 1981; Friedman, 1989; Glazer & Glazer, 1989).

In this article we focus on what faculty members state they actually did when told by a student or a colleague about another faculty member's alleged misconduct, suggest likely explanations for why faculty are willing to pursue an ethical wrong, and consider the consequences of their actions for the enforcement of ethical standards in the academic profession.

Method

Sample

There are some 550,000 full-time faculty members teaching in colleges and universities in the United States (Benjamin, 1997). About 29% of these faculty members are at research universities; 16% are found at doctorate-granting institutions; 27% are affiliated with comprehensive institutions; 8% are at liberal arts colleges; and 20% have appointments at two-year colleges (Carnegie Foundation for the Advancement of Teaching, 1987, p. 7; National Center for Education Statistics, 1990, p. 9). The total population of full-time faculty was stratified by the five types of academic institutions (research universities, doctorate-granting institutions, comprehensive institutions, liberal arts colleges, and two-year colleges), and then a sample of 2,500 faculty members was randomly selected from a complete list of all full-time faculty at those kinds of institutions (in proportion to their number in the total population of faculty described above): 725 (29%) at research universities, 400 (16%) at doctorate-granting institutions, 675 (27%) at comprehensive institutions, 200 (8%) at liberal arts colleges, and 500 (20%) at two-year colleges. Questionnaires were mailed to those in the sample and followed by two reminder postcards. In all, 890 faculty members (35.6%) returned completed questionnaires. Of this number, 86 individuals indicated that they did not currently hold a full-time faculty appointment, and so their responses were excluded. The analyses reported here are based on data from 804 respondents, of whom 28% were at research institutions, 16% were at doctorate-granting institutions, 28% were at comprehensive institutions, 10% were at liberal arts colleges, and 17% were at two-year institutions. As is typical in survey research, we have no information about the non-respondents except that their distribution at types of institutions is in the same proportion as that of the respondents. There is the possibility that those who did respond have a greater interest in ethics than do other faculty members and that their experiences with the ethical misconduct of their colleagues may have led to such an interest. On the other hand, there is no particular evidence to indicate that our respondents differ from other faculty in any discernible way.

Measures

The survey instrument for the larger study consisted of nearly 150 questions, most of them close-ended. Questions that focused specifically on ethical activism asked respondents whether they had ever been approached by other faculty or students about the alleged unethical behavior of other professors. Respondents were then asked to assess the seriousness of the issues brought to their attention. The key questions concerning ethical activism asked whether the respondents had discussed such complaints with the accused faculty member and whether they had ever broached their ethical concerns with an administrative officer. (The specific wording of these questions is described in the data analysis section.) Demographic and professional information elicited from the respondents included their age, gender, academic rank, tenure status, and length of time at the institution and as a faculty member. In addition, in order to measure the respondents' level of concern about ethic issues and familiarity with ethics policies, we asked, "Do you think you are more concerned about ethical issues than most of the other faculty members in your department?" (which could be answered with "yes, definitely," "yes, probably," "probably not," or "definitely not"), and "How familiar are you with what is stated in the policies [of your institution] about professional ethics?" (which could be answered with "very familiar," "somewhat familiar," "slightly familiar," or "not familiar at all"). We also asked respondents if they had "ever served on a committee at their institution or at another college or university that was inquiring into an alleged violation of ethical standards by a faculty member?"

Although a number of questions in the survey sought information with respect to several kinds of misconduct, including plagiarism, falsification of research data, sexual harassment of students, sexual harassment of faculty, and the claim to have a degree not awarded, the references to misconduct in the questions about ethical activism were not linked to specific misdeeds. The respondents had complete latitude to give meaning to the content of the alleged wrongdoing that was brought to their attention by a student or a faculty colleague, and which they discussed with the accused individual and/or an administrator. We have no way of knowing what that meaning was or whether it mattered to a respondent if the transgression was willful or the result of negligence, prolonged or transient, or isolated or part of a pattern. These uncertainties might have been reduced by asking the respondents about particular kinds of misconduct: for example, whether a student had ever complained to them that their work had been plagiarized by another professor, or whether a faculty member had ever claimed that she or he had been sexually harassed by a colleague. Examples of this sort, however, could not exhaust the lapses from standards of faculty conduct that occur in a college or university. The responses of an unknown number of respondents to questions about ethical activism might therefore be limited to the kinds of misconduct that we had identified in advance, thereby potentially biasing answers by excluding instances of misconduct that the respondents had encountered. Moreover, the concern of this article is not the kinds of misconduct brought to the attention of the respondents, but rather the action subsequently taken by them once they had learned of an alleged misdeed.

It should also be noted that we could not verify whether the conduct brought to the attention of the respondents in fact amounted to improper professional behavior. The information received by a respondent from a student or a colleague may have been incomplete or faulty. We had no way of determining the truth in these matters. In other words, though we are reasonably confident that the respondents accurately recalled what was told to them, we have no way of independently corroborating the incidents themselves.

For the data analysis, chi-square was used as the measure of significance for the bivariate relationships. Discriminant analysis, a multivariate statistical technique, was used to determine the relative effects of the demographic and professional characteristics on a number of important variables. Measures of the respondents' level of concern about ethical issues and level of familiarity with their institutions' policies on ethics were excluded from the discriminant analysis because they were subjective attitudinal variables rather than objectively reported demographic and professional characteristics. Bivariate correlations of the variables used in the discriminant analyses are presented in Appendix A. The standardized canonical discriminant function coefficients, analogous to beta weights in standard multiple regression, were considered in order to assess the relative importance, or discriminating power, of each of the predictor variables. For each discriminant analysis, the direct-entry method for the inclusion of the eight potentially discriminating variables was utilized. The variables used in the analysis were recoded as follows: service on an ethics committee (1 = yes, 0 = no); tenured (1 = yes, 0 = no);

length of time as a faculty member and length of time at current institution (1 = less than 5 years, 2 = 5–9 years, 3 = 10–19 years, 4 = 20 or more years); rank (1 = assistant professor, 2 = associate professor, 3 = full professor); service as department head (1 = yes, 0 = no); gender (1 = male, 0 = female); and age (1 = under 30, 2 = 30–39; 3 = 40–49; 4 = 50–59; 5 = 60 or older). The codes 1 = yes and 0 = no were used for complaints from a student or faculty member and for approaching a faculty member or administrator about complaints from a student or faculty member.

Data Analysis

Who Learns About Complaints?

In order to find out how many faculty had received complaints from students or faculty about the behavior of other faculty members, respondents were asked two questions, "Has a student (or have students) ever complained to you that another faculty member's conduct was unethical?" and "Has a faculty member (or have faculty members) ever complained to you that another faculty member's conduct was unethical?" We find that just over half the respondents (60%) report that students have complained to them that another professor's conduct had been unethical. An almost identical percentage (58%) report the same thing happening with regard to colleagues complaining about other faculty.

Who are the faculty members that students and other professors speak with about ethical misconduct? Table 1 shows that students and faculty share their concerns with the same kinds of faculty. Those who have served on a campus ethics committee, have tenure, and have served longer in the profession and at their current institution are significantly more likely to have heard complaints than those who did not have tenure or who had not so served. For example, 83% of the respondents who had been members of an ethics committee were approached by a student compared to 57% of those who had not, while 68% of respondents who had been in the profession 10 to 19 years were contacted by a student compared to 45% of those whose service was less than 5 years. In addition, faculty members who describe themselves as "very familiar" with the ethics policies found in their campus regulations and believe themselves to be more concerned about ethical issues than other faculty members are significantly more likely to hear complaints. We see, for example, that 71% of faculty who feel they are "definitely" more concerned than others were sought out by students compared to 34% of those who say they are "definitely not" more concerned. On the other hand, such variables as rank and whether one had served as a department head made

TABLE 1

Faculty Members Who Are Approached by Students and Faculty About the Unethical Conduct of Professors by Characteristics of Respondents

	Percent Responding Yes	
	Approached by Student	Approached by Faculty
Overall	59.9	58.2
Level of Concern About Ethics Issues Relative to Departmental Colleagues		
Definitely more concerned	71.3	61.5
Probably more concerned	69.6	68.4
Probably not more concerned	57.6	55.8
Definitely not more concerned	34.1	50.0
	$p < 0.001$	$p < 0.05$
Familiarity with Ethics Policies		
Very familiar	69.9	61.9
Somewhat familiar	60.8	59.1
Slightly familiar	53.8	57.0
Not familiar at all	51.7	44.8
	$p < 0.05$	ns
Service on Ethics Committee		
Yes	83.3	81.4
No	56.7	55.2
	$p < 0.001$	$p < 0.001$
Tenure Status		
Tenured	61.2	62.1
Untenured	55.3	48.6
	ns	$p < 0.001$
Length of Time as a Faculty Member		
Less than 5 years	44.5	41.5
5–9 years	61.4	55.9
10–19 years	67.5	64.2
20 or more years	59.2	61.6
	$p < 0.001$	$p < 0.001$
Length of Time at Current Institution		
Less than 5 years	52.3	49.7
5–9 years	58.7	56.0
10–19 years	64.8	62.8
20 or more years	63.2	63.9
	$p < 0.05$	$p < 0.05$
Rank		
Assistant Professor	56.8	52.7
Associate Professor	57.9	61.6
Full Professor	64.4	61.7
	ns	ns
Department Head		
Yes	61.3	57.5
No	59.0	58.2
	ns	ns
Gender		
Male	59.3	56.5
Female	60.9	61.7
	ns	ns
Age		
Under 30	66.7	58.3
30–39	55.8	52.8
40–49	66.0	57.7
50–59	57.7	63.3
60 or older	50.0	55.2
	ns	ns
	($N = 786$)	($N = 787$)

little difference in the likelihood that a respondent was approached by a colleague or student about the behavior of another faculty member.

The discriminant analysis for student complaints revealed that service on an ethics committee (+0.78), age (–0.76), and length of time at the current institution (+0.39) were the most powerful variables, while the multivariate analysis for faculty complaints indicated that service on an ethics committee (+0.68), length of time as a faculty member (+0.42), and gender (–0.33) were the best discriminating variables (see Table 2). Thus, respondents who had served on an ethics committee and had spent a considerable length of time either in the profession or at their current institution were most likely to receive complaints from students or other faculty members. In addition, younger faculty were more likely than older faculty to hear from students, while women were more likely than men to hear from other faculty.

Ethical Activism: Who Discusses the Complaint with the Accused?

It is one thing to listen to students or colleagues as they share their concerns or complaints about other faculty members; it is another for a professor to pursue the matter with an accused person. Who are these professors? Respondents were asked two questions, "Have you ever discussed a student's complaint with the faculty member alleged to have acted unethically?" and "Have you ever discussed a faculty member's complaint with the other faculty member(s) who is (are) alleged to have acted unethically?" Table 3 shows that while those who have discussed a complaint with the accused faculty member are broadly similar to the larger group of respondents who hear complaints—they have served on ethics committees, have tenure, and have been in the profession for many years and thus are more likely to engage in ethical activism—they are

TABLE 2

Discriminant Analyses—Standardized Canonical Discriminant Function Coefficients

	Student Complaint	Faculty Complaint	Student Complaint Activism	Faculty Complaint Activism	Admin Action
Ethics committee	0.78	0.68	0.40	0.12	0.35
Tenure status	0.01	0.26	0.14	–0.11	–0.08
Yrs. as faculty member	0.09	0.42	0.09	0.01	0.16
Yrs. at current institution	0.39	0.18	–0.61	–0.19	0.40
Rank	0.30	–0.05	0.25	0.49	0.25
Department head	0.17	–0.23	0.55	0.54	–0.06
Gender	–0.17	–0.33	0.15	0.35	–0.34
Age	–0.76	–0.21	0.44	0.21	0.31

TABLE 3

Discussing Complaint with the Accused Faculty Member by Professional and Demographic Characteristics of the Respondents

	Percent Responding Yes	
	Complaint from Student	Complaint from Faculty Member
Overall	54.1	46.5
Level of Concern About Ethics Issues Relative to Departmental Colleagues		
Definitely more concerned	52.9	53.2
Probably more concerned	60.0	47.6
Probably not more concerned	51.7	45.8
Definitely not more concerned	37.5	33.3
	ns	ns
Familiarity with Ethics Policies		
Very familiar	64.8	64.5
Somewhat familiar	61.8	46.0
Slightly familiar	44.7	42.7
Not familiar at all	13.3	50.0
	$p < 0.001$	$p < 0.05$
Service on Ethics Committee		
Yes	74.1	57.0
No	50.0	44.6
	$p < 0.001$	$p < 0.05$
Tenure Status		
Tenured	58.5	49.5
Untenured	43.3	39.3
	$p < 0.005$	ns
Length of Time as a Faculty Member		
Less than 5 years	35.7	24.5
5–9 years	50.6	37.7
10–19 years	53.5	52.1
20 or more years	62.9	51.1
	$p < 0.005$	$p < 0.001$
Length of Time at Current Institution		
Less than 5 years	49.1	35.9
5–9 years	55.6	48.5
10–19 years	51.0	47.5
20 or more years	60.9	51.5
	ns	ns
Rank		
Assistant Professor	35.7	28.3
Associate Professor	55.0	45.6
Full Professor	66.5	58.0
	$p < 0.001$	$p < 0.001$
Department Head		
Yes	73.1	62.3
No	42.8	37.3
	$p < 0.001$	$p < 0.001$
Gender		
Male	58.7	52.4
Female	45.3	34.9
	$p < 0.01$	$p < 0.001$
Age		
Under 30	37.5	0.0
30–39	38.3	32.6
40–49	54.3	48.8
50–59	61.9	49.4
60 or older	73.5	67.6
	$p < 0.001$	$p < 0.001$
	(N = 486)	(N = 475)

also different from them in several specific ways. There were minimal differences by rank with regard to who was approached by a student or faculty member about the possible misconduct of another faculty member, but rank seemed to matter a good deal in terms of which faculty member spoke with the accused. For example, 58% of full professors approached by a faculty member about another faculty member pursued the matter, but only 28% of assistant professors did the same. Respondents who had not served as department chairs were as likely as those who had so served to hear complaints from faculty members or students, but those with experience as a department head were significantly more likely to pursue a matter with a faculty member who was the subject of a complaint. This was the case with 73% of student complaints and 62% of faculty complaints. The comparable figures for respondents who had not served as department chair were 43% and 37%, respectively. Although the respondents' level of concern about ethical issues relative to colleagues did not matter, respondents' degree of familiarity with their institution's policies on professional ethics did. For example, 65% of respondents who described themselves as very familiar with such policies approached the accused faculty member compared to 43% of those who described themselves as not very familiar with such policies.

As we saw above, age was of little importance for understanding which faculty members were sought out to discuss the alleged misconduct of other faculty, but it shed significant light on which respondents discussed the problem with the accused. While about 50 to 65% of the respondents in each age group in our survey had received a complaint, those who were older were much more likely than those who were younger to pursue the complaint with the faculty member in question. Seventy-four percent of those 60 and older and 62% of those 50 to 59 years of age discussed a student complaint with the accused compared to 38% of those under 30 and of those 30 to 39 years of age. The pattern by age for pursuing faculty complaints was quite similar.

One particularly interesting difference emerged with respect to the gender of our respondents (see Table 4). Among male professors, 59% pursued a complaint from a student with the faculty member in question, and 52% did the same with a complaint from a faculty member. The figures for female professors were 45% and 35%, respectively. One might assume that the role of gender could be explained by the fact that our female respondents were more likely than male respondents to be at a lower rank and to have served less time in the profession and at their current institution. But when we controlled for each of these three variables, we found that, for the most part, there were no significant differences for women. Furthermore, with the exception of those who had

TABLE 4

Respondents Who Pursued Complaint with the Accused by Gender, Rank, and Length of Service in the Profession and at the Current Institution

	Complaint from Student		Complaint from Faculty Member	
	Male Faculty	Female Faculty	Male Faculty	Female Faculty
Overall	58.7	45.3	52.4	34.9
	$p < 0.01$		$p < 0.001$	
Rank				
Assistant professor	40.7	30.2	25.0	31.3
Associate professor	57.6	52.4	50.5	37.2
Full professor	66.7	65.2	61.0	39.1
	$p < 0.005$	$p < 0.05$	$p < 0.001$	ns
Length of Time as a Faculty Member				
Less than 5 years	36.1	36.8	23.3	26.1
5–9 years	51.2	50.0	34.2	42.1
10–19 years	60.7	42.9	61.0	35.2
20 or more years	65.9	50.0	56.6	30.6
	$p < 0.01$	ns	$p < 0.001$	ns
Length of Time at Current Institution				
Less than 5 years	50.7	47.4	40.7	29.5
5–9 years	61.0	47.5	50.0	46.2
10–19 years	60.0	37.0	57.6	27.3
20 or more years	62.0	54.2	55.0	37.5
	ns	ns	ns	ns
	($N = 332$)	($N = 148$)	($N = 317$)	($N = 152$)

Male/female differences were significant for both student and faculty complaints for respondents who had been in the profession 10 to 19 years ($p < 0.05, p < 0.005$) and for respondents who had been at their current institutions for 10 to 19 years ($p < 0.05, p < 0.001$). Male/female differences were also significant for faculty complaints only for full professors ($p < 0.05$) and those who had served in the profession for 20 or more years ($p < 0.01$).

been at their current institution 5 to 9 years (where the gap between male and female faculty was only 4%), the percentage of male professors who had discussed a matter brought to them by a faculty member with the accused colleague exceeded the percentage of women professors by at least 10%, and the gender differences were significant. For faculty who had been at their current institution 10 to 19 years, 58% of male faculty pursued the matter with the accused colleague compared to only 27% of female faculty. Differences by gender persisted and were significant for full professors and those who had been in the profession either 10 to 19 years or for more than 20 years. With regard to student complaints, the gender differences were greatest for respondents who had served longer in the profession and at their current institution.

In addition, the multivariate analysis showed that length of time at current institution (−0.61), service as department head (+0.55), age (+0.44), and service on an ethics committee (+0.40) were the best discriminating variables with regard to approaching a faculty member about a student complaint (see Table 2). For approaching a faculty member about a complaint by another professor, the key variables were service as department head (+0.54), academic rank (+0.48), and gender (+0.35) (see Table 2). Service as department head was positively associated with speaking with a faculty member about both a student or faculty complaint. Whereas younger faculty members were more likely to receive a complaint from a student, older faculty members were more likely to pursue such a complaint with the accused. As noted previously, female faculty were more likely than male faculty to receive complaints from other faculty, but male faculty members were more likely to approach a faculty member who was the subject of a complaint.

In general, then, the respondent likely to discuss the alleged misconduct with the faculty member in question was a tenured, male, full professor who had served on an ethics committee or as department head, had been in the profession and at his institution for many years, and was familiar with the campus policies regarding professional ethics.

The Seriousness of the Complaint

We asked respondents, "How serious were the matters brought to your attention?" Twenty percent of the complaints from students and 31% from faculty members were thought to be "very serious." In the category of "somewhat serious" fell 54% of students complaints and 51% of faculty complaints. For the rest, the respondents considered 9% of the student complaints and 6% of the faculty complaints "not very serious," and 17% of the former and 12% of the latter a mixture of more and less serious issues.

We then asked the respondents whether they had discussed the complaint with the faculty member alleged to have acted unethically. Surprisingly, whether the complaint came from a student or a faculty member, the perceived seriousness of the issue had little impact on the likelihood that the respondent discussed the matter with the accused faculty member. Slightly more than half (54%) who characterized the complaints of students as "very serious" pursued the matter with the subject faculty member compared to 57% of those who characterized the complaint as "not serious at all." Similarly, while 45% of the respondents who characterized the complaints of faculty as "very serious" took the same step, this was also true for 48% of those who characterized the complaints as "not serious at all."

Ethical Activism: Who Spoke with an Administrative Officer?

We suggested above that some faculty members who are approached by students or other faculty for help in trying to resolve an ethics problem may deal with the matter by advising the aggrieved party to contact a person on the campus more familiar with ethics questions (for example, an ombudsman) or by speaking, at least initially, with an administrator. Our survey did not address the former possibility, but it did the latter.

We asked our respondents, "Have you ever expressed concern to an administrative officer (e.g., a department chairperson or dean) at your current institution or at another college or university that a faculty member may have violated or, in your view, did violate standards of professional ethics?" Fifty-two percent of the respondents answered in the affirmative. Among these faculty members, 70% of those who had spoken with an accused colleague about a faculty complaint and 64% of those who had spoken with an accused colleague about a student complaint had expressed concern to an administrative officer. The characteristics of these faculty members are by now familiar: they are typically tenured full professors who have served on an ethics committee or as a department head and have been in the profession or at their current institution for a considerable period of time (see Table 5). Moreover, about 45% of the faculty members who did not speak with an accused colleague raised a concern with an administrative officer. (It should be noted that we have no data about the seriousness of these complaints.)

The multivariate analysis showed that time at current institution (+0.40) and service on an ethics committee (+0.35) were the best discriminating variables, followed closely by gender (–0.34) and age (+0.31) (see Table 2). Not surprisingly, faculty members who are more likely to pursue a concern with an administrative officer have been at their institutions for some time, had served on an ethics committee, and are older. In addition, being female was positively associated with taking such a step. For example, at every academic rank, women were more likely to engage in this type of ethical activism than were their male counterparts (e.g., 78% of female full professors pursued their concern with an administrator compared to 61% of male full professors).

We asked respondents, "Did the problem [about which they expressed concern to an administrator] involve a dispute between you and someone else (e.g., a faculty member or an undergraduate at your institution, or a collaborator at another institution)?" Seventy-one percent of the faculty members who discussed a violation of professional ethics with an administrative officer were not involved in the dispute at issue. This figure suggests that a significant majority of the respondents were willing to speak out on behalf of the profession without having a stake in the outcome of a particular controversy.

As Table 5 shows, respondents who were parties to the dispute and approached an administrative officer were more likely to be newer mem-

TABLE 5

Speaking with an Administrative Officer and Whether the Respondent was Party to the Dispute by Characteristics of the Respondents

	Percent Responding Yes	
	Speaking with an Administrative Officer	Party to the Dispute
Overall	52.1	28.8
Level of Concern About Ethics Issues Relative to Departmental Colleagues		
Definitely more concerned	59.2	46.5
Probably more concerned	60.7	27.8
Probably not more concerned	47.3	24.8
Definitely not more concerned	40.9	22.2
	$p < 0.05$	ns
Familiarity with Ethics Policies		
Very familiar	65.8	29.7
Somewhat familiar	51.9	25.2
Slightly familiar	47.5	24.4
Not familiar at all	25.9	28.6
	$p < 0.05$	ns
Service on Ethics Committee		
Yes	71.0	24.2
No	48.9	30.3
	$p < 0.001$	ns
Tenure Status		
Tenured	57.7	26.6
Untenured	36.9	39.6
	$p < 0.001$	ns
Length of Time as a Faculty Member		
Less than 5 years	27.4	35.0
5–9 years	47.9	45.5
10–19 years	48.5	24.7
20 or more years	65.7	25.4
	$p < 0.001$	$p < 0.05$
Length of Time at Current Institution		
Less than 5 years	34.4	44.4
5–9 years	46.5	36.8
10–19 years	53.9	21.2
20 or more years	68.9	24.1
	$p < 0.001$	$p < 0.05$
Rank		
Assistant Professor	37.9	37.0
Associate Professor	52.2	28.4
Full Professor	63.1	27.2
	$p < 0.001$	ns
Department Head		
Yes	58.0	23.2
No	47.8	33.3
	$p < 0.05$	ns
Gender		
Male	51.0	26.2
Female	52.7	34.4
	ns	ns
Age		
Under 30	9.1	0.0
30–39	37.0	39.5
40–49	48.2	31.4
50–59	64.3	23.6
60 or older	65.1	25.0
	$p < 0.001$	ns
	($N = 584$)	($N = 295$)

bers of the profession, relatively new to their current institutions, untenured, and not to have served as a department chair. In addition, they were somewhat more likely to be female faculty rather than male faculty and assistant professors instead of faculty at higher ranks. Thus, those who bring a possible violation of misconduct to the attention of an administrative officer when they are a party to the dispute include those who have the least secure faculty status on a campus.

Administrative Action

Among our respondents, 291, or 52%, stated that they had complained to an administrator about the conduct of a colleague. Of this number, 181 (61%) indicated that the administration listened to what they had to say but apparently took no action; 44 (15%) reported that the administration had issued a reprimand to the individual under question; 23 (8%) said that a colleague had resigned before a formal inquiry was convened; and 49 (17%) reported that a formal hearing took place. Of the 49 cases that went to a hearing, 19 (39%) were settled before a finding was reached, 13 (27%) found against the accused faculty member, and 17 (35%) found in favor of the faculty member.

Discussion

What are the characteristics of the faculty members most likely to hear the complaints of students or other colleagues about the alleged ethical transgressions of another faculty member? The information we have about the respondents' professional characteristics is current only for the time when they completed the survey instrument and not when they might have been approached by a faculty member or student about an ethical problem. Thus, we cannot be certain whether these faculty members were, in fact, more likely to have been sought out because of their veteran status or whether their sheer length of service meant that they would have been approached at some point in their careers. Still, the consistency of the data with what common sense lead us to expect indicates that those who are sought out are typically seasoned veterans at their institutions, familiar with the formal and informal rules of the games, and secure in their positions. They are seen, in other words, as voices of sound advice and potentially the most effective faculty, that is, in a position to actually take action of some sort.

With regard to the seriousness of the complaint, one would have thought that respondents who believed that complaints were "very serious" would be more likely to speak with a colleague about the alleged misconduct than respondents who believed that the complaints were "not serious at all." Indeed, why should any of the latter respondents, let alone nearly half of them, discuss a potentially embarrassing subject with a colleague if, in their judgment, a complaint was not very serious? One conjecture is that for some faculty members it was easier for them to speak with an accused colleague when the complaint was not very serious; it reduced the sting of an often uncomfortable or even painful situation. Another possibility is that some respondents may have sought to mollify a distraught student or colleague, who was convinced that his or her complaint was serious. The respondents' different assessment might have made this task all the more easy. Lastly, there is the possibility that a respondent wanted to alert a colleague to an accusation, which, even if not very serious, was gaining some currency.

If a complaint's lack of seriousness is not related to whether a respondent spoke with an accused colleague, what does this imply for a complaint that was "very serious"? The answer is not clear. Just over half of the respondents who believed that a complaint was "very serious" spoke with the allegedly errant colleague, and, although we have no way of determining what was said in these conversations, we are inclined to applaud the initiative. But what is one to make of those respondents who described the complaints as "very serious" but did not take up the matter with the colleague? At least two possibilities come to mind. One is that those who hear complaints may not be well suited, either because of experience or temperament or both, to go further with them. The characteristics of those who are most likely to hear complaints may explain why students and other professors confide in them, but not everyone who is empathetic as an academic is also effective in bringing an issue to a head. The second possibility is quite different: the complaint was too serious to discuss with the accused faculty member, at least initially, and the matter was instead brought to the attention of another person in a better position to deal with the matter.

What about those faculty members who speak with a suspect colleague? Male faculty members are significantly more likely to take this course of action with an accused colleague the longer they have served in the profession or the higher their academic rank. By contrast, years in the profession and academic rank have little effect on the willingness of female faculty members to discuss a complaint with the colleague in question. Why this should be the case is something of a mystery. Perhaps part of the answer has to do with the gender of the individuals who are the subject of complaints by students and other faculty members. We collected no data on this subject, but one possibility is that female professors may be more reluctant to speak directly with male faculty members than are male colleagues.

This speculation gains some plausibility from the finding that female professors are more doubting than male professors about the ethical probity of the academic profession. In the larger study of which this article is a part we asked the respondents, "What is your overall impression of the extent of misconduct by faculty members, whether as teachers, researchers, or colleagues, in colleges and universities today?" Sixty-five percent of female faculty members believe there is currently some or a great deal of misconduct compared to 52% of male faculty members ($p < 0.001$). This greater doubt about the integrity of the profession may become a disinclination to speak with male professors who are, as a result of their numbers in the academic profession, more likely to be the subject of complaints by students and other faculty members. Of course, even if this speculation were shown to be valid, an obvious question would still need to be answered: why are female faculty members less willing than male faculty members to pursue a complaint lodged against a male professor?

What, in sum, is one to think about ethical activism in the academic profession? Most of all, the data suggest that faculty members, or at least a considerable percentage among those responding to this survey, who are told about a case of possible ethical misconduct are not likely to let the matter slide. This is especially true of those faculty members who have spoken with a colleague about the alleged misconduct, for they are the same type of faculty members who have pressed forward and brought their concerns to the attention of the administration.

To the extent that our interpretation of these data is correct, it broadens our understanding of the profession as a whole. There are data which show that many graduate students in chemistry, civil engineering, microbiology, and sociology report witnessing misconduct by faculty members (Anderson, Louis, & Earle, 1994, p. 342; see also Anderson, 1996), and that faculty members and administrators in different disciplines believe that instances of misconduct by professors are on the rise and/or widespread (Braxton & Bayer, 1994, pp. 351–352). According to one study, 40% of faculty respondents in sociology expressed the view that colleagues had engaged in sexual harassment (Swazey, Anderson, & Lewis, 1993, pp. 544, 546). This study rightly cautions against assuming that perceptions of misconduct are the same as verified accounts of wrongdoing. Whether or not faculty misconduct is fairly common, however, a more nuanced understanding of the academic profession will need to take into account the fact that faculty members report that they are unlikely to keep silent when confronted with what they think is a breach of professional ethics.

It might be objected that this conclusion is incomplete, and therefore misleads, by failing to consider what happens to complaints or protests that faculty members bring to the attention of an administrator. To know that faculty do not remain silent in the face of misconduct may be reassuring;

not to know the fate of their activism can be frustrating, even dispiriting. Thus, it seems appropriate to add a postscript to consider the institutional setting in which the ethical activism of faculty members plays out.

Those who are skeptical about the willingness of college and university administrators to deal forthrightly with faculty misconduct are not likely to be comforted by the fact that many of our respondents were aware of no action taken by administrators after they listened to their complaints. There is the possibility that some of these respondents were misinformed or uninformed about what happened (or did not happen) to their complaints. But even if many of the respondents were laboring under a misapprehension of one sort or another, that fact itself should be worrisome for anyone concerned about whether colleges and universities are dealing effectively with faculty misconduct, for it would imply not only a breakdown in communications between administrators and faculty, but also a weakening of the institution's credibility in dealing with faculty misconduct. To the extent that an administrator acts, or is believed to act, unilaterally, the more likely there will be confusion or conflict about the institution's commitment to upholding standards of professional ethics.

This bleak prospect, however, should be weighed against the answers of those respondents who indicated that they were aware of steps taken by the administration to deal with a complaint about faculty misconduct. But these responses need to be placed in a broader context.

There are, as noted earlier, close to 550,000 full-time faculty members in American higher education, and it is safe to say that few of them will be the subject of a disciplinary proceeding or will have to choose between such a proceeding and resigning from their positions. Although there are no reliable national figures on the actual number of faculty members who have faced or gone through a disciplinary proceeding, one piece of evidence underscores that these are unusual events in the academic community. The American Association of University Professors, in implementing the principles and standards that govern academic life, has in recent years handled approximately twelve hundred complaints annually concerning the academic status of faculty members. During the period 1990–1994, the Association's national office in Washington processed a total of 51 dismissal cases, a figure that includes 17 cases of threatened dismissal action.[2] There is no way of accurately knowing how many dismissal cases do not come to the attention of the Association, and a dismissal is not the only serious sanction—although it is the gravest—that can be imposed on a faculty member. Still, the relatively small number of dismissal cases with which the Association dealt over a five-year period is broadly indicative of what is likely not to happen to most faculty members.

This will surprise no one, for an administration that seeks to impose a sanction on a faculty member embarks on a difficult voyage. The procedural obstacles are daunting, as they should be. A system of "clear, orderly, and fair procedures" is necessary to ensure the best possible judgments that may result in a serious adverse decision against a faculty member (Joughin, 1969; Van Alstyne, 1971). Administrators are not likely to welcome the prospect of disciplining a faculty member, for the process will probably be lengthy and expensive, with its outcome uncertain. Still, as experience has shown and our own data confirm, administrators are not entirely loath to take up the cudgels against those who they believe have acted unprofessionally.

Action by an administrator suggests that a faculty member's ethical activism can matter. We do not know what our respondents said to an administrator about the conduct of a colleague or how their remarks might have influenced a decision to proceed against a professor. But the likelihood that what they reported carried little or no weight seems implausible. Their status as senior professors works against that possibility, as would the desire of administrators to have their support if they moved to impose a sanction on an errant colleague. The picture of faculty activism that emerges from this line of reasoning is one in which faculty members are more willing to speak out against other faculty than is typically recognized and that what they say can importantly affect the career of another professor.

This picture has a practical implication. Administrators who encourage faculty members to press forward with their concerns and treat those concerns seriously lay the foundation for these faculty to be more accepting of the outcome of their having raised an issue, irrespective of the outcome. This is not to suggest that faculty do not care about results—obviously they do—but to emphasize that a shared commitment to upholding standards of professional responsibility that is seen as such by both faculty and administrators cannot but help strengthen the institution's ability to deal with instances of misconduct.

Notes

[1] This larger study was jointly sponsored by the American Association of University Professors and the American Philosophical Association. Funding for the collection of data discussed in this article was provided by TIAA-CREF, Lilly Endowment, Incorporated, and Franklin and Marshall College.

[2] The dismissal figures are drawn from the Association's files. It should be noted that the dismissal cases do not include termination of faculty appointments for financial or program reasons, that is, for reasons that do not address the fitness of a faculty member to carry out his or her duties. Nor are dismissals the same as the nonrenewal of faculty appointments, including the denial of tenure.

APPENDIX A

Correlation Coefficients

	Student complaint	Student complaint-activism	Faculty complaint	Faculty complaint-activism	Admin. action	Party to dispute	Ethics comm.	Tenure status	Years as faculty member	Years at current institution	Rank	Department head	Gender	Age
Student complaint	1.00													
Student complaint-activism	0.08	1.00												
Faculty complaint	0.33**	0.16**	1.00											
Faculty complaint-activism	0.16**	0.56**	–0.06	1.00										
Administrative action	0.22**	0.20**	0.21**	0.24**	1.00									
Party to dispute	–0.03	–0.11	0.02	–0.06	0.01	1.00								
Ethics committee	0.18**	0.18**	0.18**	0.09*	0.16**	–0.05	1.00							
Tenure status	0.06	0.14**	0.12**	0.09	0.19**	–0.11	0.18**	1.00						
Yrs. as faculty member	0.08*	0.16**	0.13**	0.16**	0.23**	–0.12*	0.23**	0.67**	1.00					
Yrs. at current institution	0.08*	0.07	0.11**	0.10*	0.25**	–0.17**	0.23**	0.63**	0.79**	1.00				
Rank	0.06	0.24**	0.07	0.23**	0.20**	–0.07	0.17**	0.63**	0.68**	0.57**	1.00			
Department head	0.02	0.30**	–0.01	0.24**	0.10*	–0.11	0.11**	0.29**	0.38**	0.28**	0.38**	1.00		
Gender	–0.02	0.12*	–0.05	0.16**	–0.02	–0.09	0.06	0.23**	0.16**	0.16**	0.29**	0.13**	1.00	
Age	–0.04	0.19**	0.05	0.18**	0.23**	–0.11	0.16**	0.43**	0.68**	0.59**	0.52**	0.37**	0.10**	1.00

*$p < 0.05$. **$p < 0.01$.

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Academic Integrity in Honor Code and Non-Honor Code Environments

A Qualitative Investigation

Academic dishonesty on college campuses has been the subject of much research in recent years. Studies have generally used survey techniques to test theories about the individual and contextual characteristics that are thought to influence cheating in college. With regard to individual characteristics, results have typically found that underclassmen cheat more than upperclassmen (Bowers, 1964), that male students cheat more than female students (Bowers, 1964; McCabe & Trevino, 1997), and that students with lower grade point averages cheat more than higher achieving students (Bowers, 1964; McCabe & Trevino, 1997). With regard to contextual characteristics, studies have found that cheating is higher among fraternity and sorority members (Stannard & Bowers, 1970), among students involved in intercollegiate athletics (Bowers, 1964), among students who perceive that their peers cheat and are not penalized (Bowers, 1964; McCabe & Trevino, 1993, 1997), and is lower at institutions that have strong academic honor codes (Bowers, 1964; Brooks, Cunningham, Hinson, Brown, & Weaver, 1981; Campbell, 1935; Canning, 1956; McCabe & Trevino, 1993).

It is helpful to understand the individual and contextual characteristics that influence cheating, because interventions aimed at controlling cheating can be aimed at groups who cheat more (such as underclassmen) or contexts where cheating is supported (such as fraternities or sororities). However, honor codes may represent the most important

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contextual factor, because they offer faculty and administrators a means to influence behavior across the entire student body. Although survey research findings have shown that honor codes have a positive impact on academic integrity, we know little about students' thoughts and feelings about these codes and how and why they think honor codes influence their behavior. We also know little about how honor code students and non-honor code students might differ along these lines.

McCabe and Trevino (1993) suggested that honor codes may lead to lower levels of academic dishonesty because they clarify expectations and definitions of cheating behavior. Therefore it may be more difficult to rationalize and justify cheating because there are fewer grey areas. Second, they proposed that moral norms are more likely to be activated and influence behavior under honor codes, because in honor code environments students are given responsibility for detecting violators, determining guilt, and assigning penalties. Moral norms are also more likely to be activated when individuals take responsibility for outcomes (Schwartz, 1968). Finally, they argued that students may abide by honor codes because they are motivated to preserve valued privileges, such as unproctored exams. Although their survey data confirmed the positive relationship between honor codes and academic integrity, the data could not confirm the reasons for the relationship.

In this study, which was part of a larger study of academic cheating in honor code and non-code institutions, conducted in the 1995–1996 academic year, we used qualitative techniques to delve more deeply into students' thoughts about academic integrity. At the end of the survey students were asked to comment openly about the effectiveness of the academic integrity policies on their campuses and the prevalence of cheating, both their own and that of their peers. Specifically, the last question on the survey invited students to offer "any comments you care to make or if there is anything else you would like to tell us about the topic of cheating in college." The term honor code was not used here or elsewhere in the survey. The research instrument focused on cheating, and the term "academic integrity policies" was used to refer to relevant policies on each campus. Therefore, respondents were unaware of our interest in the impact of codes on their thinking. The open-ended comments provided by students were content analyzed to learn more about their thoughts and feelings with regard to academic integrity on their campuses.

Method

Sample

The 31 U.S. colleges and universities providing the sample for this study generally have small to moderate enrollments and are highly selective in their admissions policies. Fourteen of the 31 schools employ traditional honor codes to discourage and/or control academic dishonesty while the remaining 17 rely on more conventional policies. Melendez (1985) defined an honor code as a policy that includes one or more of the following elements: a written pledge in which students affirm that their work will be or has been done honestly; the majority of the judiciary that hears alleged violations of academic dishonesty is comprised of students, or the chair of this group is a student; unproctored examinations; and a clause that places some degree of obligation on students to report incidents of cheating they learn about or observe. All 14 of the schools classified in this project as honor code schools met at least two of these requirements, and most met all four. As noted earlier, however, to avoid the introduction of any bias, the research instrument employed in this study made no reference to the concept of an honor code. Rather, the survey focused on cheating, and the term "academic integrity policies" was used in both the code and non-code surveys to refer to the relevant policy on each campus.

The institutional characteristics of the code and non-code schools in our sample suggest that the two groups are comparable with regard to both size (mean number of students = 3426 for non-code and 3447 for code institutions) and academic selectivity (mean SAT score = 1235 for non-code and 1244 for code institutions). In addition, the majority of students at both groups of schools lived on campus, 80% of the students at the non-code schools and 89% at the code schools. The only substantive difference between the two groups is the inclusion of five all female institutions in the code school sample, while there were no traditional women's colleges among the non-code schools.

Procedure

At 30 of the 31 institutions, surveys were mailed to a random sample of 400 students in the fall of 1995, 200 members of the senior class and 100 members each of the sophomore and junior classes. Due to a misunderstanding, only 100 students received surveys at the remaining school. Thus a total of 12,100 surveys were distributed.

Respondents were asked to anonymously complete and return the survey by mail. One hundred twenty-eight surveys were returned as non-deliverable and 4,285 completed surveys were received for an overall response rate of 35.8%. The return rate at honor code schools was 41.4%, while the return rate at non-code schools was lower (30.9%), perhaps suggesting more interest in academic integrity issues at honor code schools. Twenty-five percent of the respondents were sophomores, 24.4% were juniors, and 50.6% were seniors. The demographic profile of the respondent group closely matched the respective institutional profiles with the exception of gender. Based on available demographic information for each school, we would have expected a female/male ratio of 59/41 among respondents. However, females returned surveys at a significantly higher rate, and the actual female/male ratio among respondents was 67/33. Therefore, the reader is cautioned that the overrepresentation in our sample of women and students attending honor code schools means that the sample is somewhat biased in favor of groups who generally report lower levels of cheating than their counterparts (e.g., Bowers, 1964; McCabe & Trevino, 1993).

Content Analysis

Respondents' open-ended comments were entered verbatim by one of the researchers into two separate databases, one for honor code colleges and one for non-honor code colleges. The data were separated into code and non-code groups based on prior research which suggests that students in honor code and non-honor code environments might view issues of academic integrity differently (McCabe & Trevino, 1993). We could not assume that the responses from honor code and non-code students would be sufficiently similar to combine them in a single analysis.

Each data base was analyzed separately, using the same three-phase content analysis procedure (Butterfield, Trevino, & Ball, 1996; Glaser & Strauss, 1967; Miles & Huberman, 1984). In the first or "unitizing" phase, one of the researchers broke the transcripts down into basic "thought units" (Goia & Sims, 1986), each of which represented a complete thought or idea. Thought units ranged from a short phrase to a complete sentence or several sentences. Each thought unit was then printed on an individual index card and coded with the respondent's identification number.

In the second or "categorizing" phase, the thought units were organized into emergent categories by two members of the research team. This was the most inductive phase of the analysis. To the extent possible, we let the data speak for themselves and allowed the categories to emerge from the data. The goal was to minimize differences among thought units within a category while maximizing differences across thought units in different categories. Labels were assigned to the categories in an attempt to capture accurately the content of each category and to allow additional raters to place the thought units consistently into the same categories. Disagreements among the researchers regarding the categories and category labels were resolved through an intersubjective process involving "reality checks" (i.e., ensuring that the categories corresponded to the data), negotiation, and reformulation.

In the third or "classifying" phase of the content analysis, the emergent categories were grouped into a smaller number of unifying themes. Disagreements among the researchers regarding the theme content and theme labels were again resolved in an intersubjective manner similar to the process used in the categorizing phase.

Findings

Of the 2,310 students at honor code colleges who participated in this research, 971 (42.9%) provided open-ended comments, which were content analyzed. In the unitizing phase of the analysis, these 971 responses were broken down into 2,475 thought units, and analysis of these thought units yielded 37 categories. Of the 1,975 students at schools without honor codes who participated in this research, 797 (40.3%) provided open-ended comments, which were divided into 1,945 thought units. Categorization of these thought units also yielded 37 categories. These 37 categories closely corresponded to 27 of the code categories, with several code categories encompassing more than one non-code category. Ten categories identified by honor code students had no corresponding categories in the non-code sample and accounted for 14% of the total thought units identified by students at honor code schools. Two-thirds of these responses were comments about the honor code system itself and some of the unique issues associated with such codes.

To simplify the analysis and focus attention on the issues of greatest significance to respondents, categories which were not mentioned by at least 1% of either the code or non-code respondents were eliminated at this stage. This resulted in the deletion of 7 code categories (containing a total of 108 responses) and 9 non-code categories (92 responses). In addition, 31 thought units offered by code students and 26 by non-code students focused on the survey itself—e.g., offering suggestions on how the survey instrument might be improved. These were also eliminated from further analysis, meaning a total of 139 thought units from code respondents (5.6% of the total code thought units) and 118 thought units from non-code respondents (6.1%) were not analyzed further.

The remaining categories were then grouped into three major underlying themes in the "classifying" step. The largest of these themes contained 12 code and 10 non-code categories. These categories highlighted institutional and contextual factors that respondents thought were related to academic integrity. This theme accounted for 1,104 of the thought units identified at code schools (44.6%) and 550 of the thought units from non-code respondents (28.3%). The second largest theme captured student comments about the attitudes and personal factors that are important in the calculus one might use in reaching a decision whether or not to cheat. In the code sample, 663 of the thought units (26.8%) were classified in this theme, as were 657 of the thought units in the non-code sample (33.8%). The final theme consisted of comments concerning the institutional and contextual factors that respondents related to academic dishonesty. In the code sample, 569 of the thought units were placed in this category (23.0%); in the non-code sample 620 thought units fit this category (31.9%).

Tables 1, 2, and 3 show the categories comprising each of these three themes in the code and non-code samples. Also shown are sample thought units, the frequencies with which each category appeared in the data (listed in descending order of the frequency with which each category was mentioned in the code and non-code samples combined), and the percent of the total thought units accounted for by each category.

Institutional/Contextual Factors Related to Academic Integrity

The first theme focused on contextual factors related to academic integrity. The 12 categories identified by respondents at campuses with honor codes and the 10 non-code categories that talked about institutional or contextual factors related to academic integrity are shown in Table 1.

Perhaps the most telling finding in Table 1 is that almost one in six of the comments offered by students at honor code schools (15.6%) concerned the existence of an honor code on their campus (category 5) or the fact that a code existed that was deeply embedded in a culture of integrity (category 2). This large number of statements is of particular interest, because the survey contained no reference to honor codes. Despite this lack of prompting, respondents thought it was important to tell the researchers about the honor code on their campus, providing further evidence of the importance of such codes in influencing respondents' thoughts and behaviors regarding cheating (Bowers, 1964; Brooks et al., 1981; Campbell, 1935; Canning, 1956; McCabe & Trevino, 1993). Further, the 44 responses from code students in category 10 (1.8%) suggest that honor code environments help shape the ethics, values, character, attitudes, and behaviors that students carry forward from their collegiate experiences.

The largest code category in this theme included statements suggestive of honor code effectiveness. Typical comments pertained to the fact that cheating was rare at the respondent's college, that the respondent had observed little if any cheating, or that the respondent simply would not cheat. The 271 statements in category 1 (10.9% of all thought units in the code school sample) suggest that many students view their honor

TABLE 1

Institutional/Contextual Factors Related to Academic Integrity

Honor Code Categories	Freq	Non-code Categories	Freq
1. Statements regarding code effectiveness (e.g., cheating rare, I have not observed cheating, I wouldn't cheat). *"[My college] is a unique environment in which, I feel, cheating is unacceptable and rare."*	271 (10.9%)	**1a.** Statements regarding lack of cheating. *"I've never cheated or seen anyone cheat."*	148 (7.6%)
		1b. Cheating occurs, but it's not a big problem here. *"I really don't think cheating is a serious problem at [my school]."*	32 (1.6%)
2. Code is deeply embedded in a culture of integrity (via tradition, communication, training, penalties, via peer, faculty and community expectations, trust and support). Code is liked, respected, valued, taken seriously. Code provides valued freedoms. *"Our honor code is a tradition that is so strong here . . . it has been a part of [our college] since its beginning."*	257 (10.4%)	**2.** We live in a moral community—quasi honor system, expectations clearly communicated, moral socialization by school, students encouraged to know/abide by rules, school sets policies/guidelines, mutual respect with professors, honor system in certain courses/programs. *"I believe [my school's] students tend to behave in a way which upholds the community ideals of honesty and mutual respect."*	69 (3.5%)
3. Statements regarding less cheating than other schools (e.g., high school, other colleges). *"In my opinion, cheating at [my college] is much rarer [happens about 5% of the time] than in high school."*	124 (5.0%)	**3.** Less cheating compared to high schools, at academically strong colleges, as students mature. *"Cheating is a more serious problem in high school and universities that are not as prestigious as [my college]."*	55 (2.8%)
4. I am unaware of cheating that might exist (e.g., I am unaware of others' behavior/opinions, I keep to myself, my own work, if cheating occurs, no one knows.) *"I am unaware of the levels of academic dishonesty at [my college]."*	93 (3.8%)	**4.** I am unaware of cheating that might exist (e.g., I am unaware of others' behavior/opinions). Individualistic atmosphere (I keep to myself, my own work, people should take responsibility for their own actions). *"Academic integrity should be the responsibility of the individual student at the college level."*	103 (5.3%)
5. Statements about code existence, description of code. *"[My college] has a strict honor code which allows students to take unmonitored exams and requires them to report any violations."*	128 (5.2%)		
6. Supportive atmosphere. Non-competitive. No need to cheat. *"There are so many opportunities to seek help that you really don't need to cheat."*	18 (0.7%)	**6.** People don't cheat because of supportive, non-competitive, casual atmosphere—encourage group work, faculty support. *"Professors here are very understanding and supportive of people's desire to learn and are willing to offer help and bend deadlines so cheating would just seem silly and a waste of time and energy."*	53 (2.7%)

Table 1 (*Continued*)

Honor Code Categories	Freq	Non-code Categories	Freq
7. Punishment severity as a deterrent to cheating—effect of perceived consequences, penalties, hassles. *"Most people would be too paranoid to cheat anyway. The consequences are just too dire."*	62 (2.5%)	**7.** Punishment severity as a deterrent to cheating—effect of perceived consequences, penalties, hassles. *"I would prefer a poor grade than the embarrassment of being caught."*	17 (0.9%)
8. Instructors and administrators prevent cheating. Clear rules provided regarding acceptable/unacceptable behavior. Monitoring, testing methods. *"Also from another perspective, the faculty makes such an effort to get to know the students that they would notice a discrepancy in qualities of work. To falsify your work and get away with it you'd have to be a pro."*	14 (0.6%)	**8.** Instructors and administrators prevent cheating. Professors make cheating difficult. Some professors have honor systems. *"I've noted that 'honor system' classes actually are generally more honest than proctored and inspected exams."*	103 (5.3%)
9. Fear/likelihood of getting caught or reported. *"The system at [my college] is so effective that everybody is concerned about their actions."*	45 (1.8%)		
10. Code environment shapes ethics, values, character, attitudes and behaviors. Cheating wanes over time with age and maturity. *"The honor system . . . establishes honesty as an integral element of the rest of their lives."*	44 (1.8%)		
11. Peer pressure not to cheat—peer influence, lack of peer support, peers won't tolerate cheaters, cheaters looked down upon. *"Personal disgrace accompanies cheating, and most are unwilling to risk public humiliation."*	24 (1.0%)	**11.** Peer pressure not to cheat. Lack of acceptance of cheating. *"At [my college] the atmosphere is . . . high integrity. Cheating is strongly frowned upon and seen as an insult to the integrity and hard work of other students."*	15 (0.8%)
12. Peer reporting/whistleblowing. *"The honor code seems to work well—students do turn others in."*	24 (1.0%)	**12.** People are more likely to report out of self-interest. Report if grades are curved. *"I would only report cheating if I thought my grades [based on a curve or whatever] might be affected."*	5 (0.3%)

NOTE: Number in parentheses is the percent of total thought units, in the code and non-code categories respectively, accounted for by each category.

TABLE 2

Attitudes/Personal Factors Related to Academic Integrity

Honor Code Categories	Freq	Non-code Categories	Freq
13. Grade pressures, intense competition, societal & family expectations, desire to excel, laziness, getting a job. *"[My college] has such an unrealistic and tremendous workload that students often turn to cheating to make ends meet."*	119 (4.8%)	**13.** Grade pressures, intense competition, societal & family expectations, desire to excel, laziness, getting a job. *"Most people have such a high work load that they feel it is necessary to work [unapproved] in groups or copy work to get it done."*	205 (10.5%)
14. References to ethical standards, responsibility and character (e.g., integrity, respect, honesty, conscience, self-image, pride). *"Being in a collegiate academic environment should give the student a sense of academic and personal responsibility."*	140 (5.7%)	**14.** People don't cheat due to individual factors (e.g., personal ethics, integrity, pride, honesty, religion, upbringing, experiences). Students should be responsible, trustworthy. *"On the whole, I have found that [this college's] students are conscientious about academic honesty."*	70 (3.8%)
15. Ethical gray areas. Definition of cheating depends on contextual factors/is often stretched. Students unaware they're cheating? *"Helping another person out is not cheating."*	95 (3.8%)	**15.** Ethical gray areas. Definition of cheating depends on contextual factors/is often stretched. Students unaware they're cheating? *"Fraternities/sororities have files of old exams/homeworks and this is well known and basically accepted . . . so it really isn't considered cheating."*	80 (4.1%)
16. Negative emotions regarding cheating—self, other, or school-focused emotions. *"I am infuriated by the thought of someone else cheating on something which I have done without cheating."*	102 (4.1%)	**16.** Negative emotions regarding cheating. *"I feel guilty about [cheating], but I'm so afraid of failing."*	46 (2.4%)
17. Suggestions regarding honor codes and decreasing cheating behavior. *"I don't want to see increased supervision by professors, but rather a campaign to increase personal responsibility and honesty."*	42 (1.7%)	**17.** Suggestions for improving the way the school deals with cheating—we should have an honor code, desire for stricter punishments, more deterrents, more group assignments, and focus on learning, better seating arrangements, faculty responsibilities. *"The penalties for cheating are way too soft."*	97 (5.0%)
18. Not cheating is an important aspect of the college experience. Emphasis on learning, education, pride in one's work, a long-term view. *"No matter how much you cheat, it wouldn't help in the long run; if you didn't learn anything in the course, your good grade wouldn't add anything to your ignorance."*	64 (2.6%)	**18.** People don't cheat because the purpose of college goes beyond grades—focus on learning, focus on developing good character. *"I believe that college should not only teach one to think, but to better and develop one's moral standards and character."*	68 (3.5%)
19. Cheaters only hurt themselves. They get selected out. *"I know that the cheaters are just cheating themselves in the long run."*	54 (2.2%)	**19.** Cheaters only hurt themselves. *"I feel that if you cheat you are only hurting yourself."*	52 (2.7%)

Table 2 (*Continued*)

Honor Code Categories	Freq	Non-code Categories	Freq
20. Dispositional reasons why people cheat—poor character, miscellaneous personal factors, cheating is human nature. *"There are those who are by nature somewhat lazy and dishonest and would cheat because morally they do not feel it is wrong."*	26 (1.1%)	**20.** Dispositional reasons why people cheat—lack of integrity, lack of honesty or self-respect, personal characteristics. *"People without academic integrity usually go all the way out of their way to cheat."*	15 (0.8%)
21. People just shouldn't cheat, independent of the honor code. *"Cheating in any way or form is cheating and cannot be justified."*	21 (0.8%)	**21.** People just shouldn't cheat - cheating is bad/wrong. *"Cheating is cheating. There is no 'trivial' cheating."*	24 (1.2%)

Note: Number in parentheses is the percent of total thought units, in the code and non-code categories respectively, accounted for by each category.

TABLE 3

Institutional/Contextual Factors Related to Academic Dishonesty

Honor Code Categories	Freq	Non-code Categories	Freq
22. Statements regarding code ineffectiveness—cheating does occur, code too vague, codes won't work, don't believe in code, code not enforced, I/others don't know/understand the code. *"Cheating does occur, no matter what the circumstances."*	168 (6.8%)	**22a.** Cheating occurs here and in college in general. Examples of cheating. *"People store math and science formulas in their calculators to use illegally on exams."*	146 (7.5%)
		22b. Lack of understanding/knowledge of school's policy/penalties regarding cheating. *"Cheating policies are not spoken about by teachers or discussed among teachers and students."*	53 (2.7%)
		22c. Personal admissions of cheating. *"I believe ALL cheating is wrong but yet, I still do it. It's too bad."*	48 (2.5%)
23. Miscellaneous influences on cheating. School/course size. Major. Papers vs. tests. *"You are less likely to get caught cheating in a 150 person lecture than in a 12 person seminar."*	65 (2.6%)	**23.** Miscellaneous influences on cheating. School/courses size. Major. Papers vs. tests. Busy work/trivial or unfair assignments. *"Cheating seems to be more widespread in the first two years of college, where classes are large."*	161 (8.3%)
24. Lack of reporting/fear of reporting. Reasons for not reporting. *"[It is] stupid and unrealistic to assume that students will 'tell on' other students, especially friends."*	109 (4.4%)	**24.** Lack of reporting. Reasons for not reporting. *"I believe that there is an unwritten law that you do not expose the cheating actions of other students."*	69 (3.5%)

Table 3 (*Continued*)

Honor Code Categories	Freq	Non-code Categories	Freq
25. Honor codes makes cheating easy. Provides opportunity to cheat. Unlikely to catch cheaters. *"I cheat because I can. More stringent requirements would deter me since I take the path of least resistance. It's a fun challenge to see how many different ways I can thwart the system."*	98 (4.0%)	**25.** People cheat because they're unlikely to get caught. Cheating is easy to do. *"I think it is unlikely to be caught for any kind of cheating."*	25 (1.3%)
26. Problems with teachers/administrators—e.g., cheating is instructor's fault, lack of supervision/ deterrence, ambiguity of standards, I don't respect instructor. *"Most times profs fail to specify what is and is not ethical behavior."*	50 (2.0%)	**26.** Problems with teachers/administrators—e.g., cheating is instructor's fault, lack of supervision/monitoring, faculty/TA apathy, I don't respect instructor, lack of connection between course materials and assignments. *"Many professors don't really change their tests from year to year. However most students at [my college] have obtained previous tests."*	64 (3.3%)
27. Strong subcultures exist that encourage cheating (athletes, pre-meds, gender, race), cheating occurs in outgroups, peer pressure to cheat. *"It seems that fraternities and sororities seem to be the largest source of cheating."*	23 (0.9%)	**27.** Cheating occurs in subcultures (athletes, pre-meds, international students, friend sets). *"Another motivating factor for cheating is to obtain the required GPA to remain on a varsity sport."*	54 (2.8%)
28. Dissatisfaction with student judges/ policies and with honor code processes/ rules. False accusations. Unfairness/ bias. Reporting requirement. *"The honor system should . . . be run by the faculty and/or administration ONLY! Since the school is very political, . . . less popular students have a greater chance to be kicked out than popular students."*	30 (1.2%)		
29. Problems with codes—stymies discussion about cheating, creates individualistic and stressful/fearful atmosphere, codes are not necessary Or realistic, not always respected. *"One bad thing about the Honor Code is that it actually makes people afraid to go and find help when they need it."*	29 (1.1%)		

NOTE: Number in parentheses is the percent of total thought units, in the code and non-code categories respectively, accounted for by each category.

codes as effective. Statements regarding the lack of cheating also represented the largest category in theme one among students at non-code schools (148 statements or 7.6% of all non-code thought units). However, as we will discuss shortly, students at non-code schools offered significantly more comments about the fact that cheating does occur on their campuses and that there is a lack of understanding or knowledge concerning their school's policies on academic integrity. This may not be surprising in light of the small number of statements offered by non-code students in category 2 (69 or 3.5%), which speaks to the existence of a moral community on campus, a community in which students are encouraged to know and abide by the rules. In contrast, 257 (10.4%) students at honor code schools chose to speak about the extent to which the code is valued, respected, and embedded in a broad culture of integrity on campus.

> I believe [my school] to be a rare example of integrity in college. . . . The biggest factor which curtails or eliminates unethical behavior . . . is our honor code. By signing the Honor Code upon entering [my school], we all agree to conduct our studies, as well as our social lives, in an ethical manner. This results in an atmosphere of trust between students and faculty.

The greater number of responses from code (124 or 5.0%) versus non-code (55 or 2.8%) respondents in category 3, which speaks to lower levels of cheating on the respondent's campus compared to either high-school or other college campuses, lends further support to this view. As suggested by one code respondent, "Because of [my college's] student governance under our highly effective Honor Code, cheating is not as prevalent as at other colleges."

In category 4, both code (93 or 3.8%) and non-code (103 or 5.3%) students noted that they kept to themselves during tests and examinations and would be unlikely to observe any cheating that occurred in their courses. Several students noted how they often kept their heads down and focused only on their own papers. For example, "I have never seen anyone cheat because I go straight into the room, take my exam, and then leave, never lifting my head up."

Comments in category 6 highlight the existence of a supportive, non-competitive, casual atmosphere, one that encourages group work and depends upon ongoing support from the faculty. Whereas honor code students tended to describe a supportive atmosphere as being interwoven with other benefits of having an honor code environment (see category 2), non-code students tended to discuss a supportive atmosphere as an independent, separate factor that can prevent cheating behavior. As reflected by the frequency data (18 or 0.7% for honor code respondents, 53 or 2.7% for non-code respondents), non-code students were more apt to discuss the importance of a generally supportive atmosphere in preventing cheating. This may be because, for honor code students, the support provided by the honor code is more salient.

Categories 7, 9, and 11 highlight factors identified as correlates of academic integrity in prior research. For example, Bowers (1964) and McCabe and Trevino (1993, 1997) demonstrated that both the perceived severity of possible punishments for cheating (category 7) and the fear or likelihood of getting caught cheating (category 9) are positively related to academic integrity. Although both code and non-code respondents noted that perceived negative consequences reduced the likelihood of cheating behavior (category 7), only 17 such statements (0.9%) were made by non-code respondents, compared to 62 statements (2.5%) from honor code respondents.

A number of students identified peer pressure as a deterrent (category 11), consistent with the findings of both Bowers (1964) and McCabe and Trevino (1993). The number of responses in this category seemed low, given the importance of peer behavior in previous research (24 code and 15 non-code responses). However, peer behavior may be captured more broadly in categories 1 and 2, which speak to the environment of integrity created on many campuses by honor codes and other academic integrity policies.

A small number of comments referred to the peer reporting of cheating (category 12). Many honor codes place some form of obligation on students to report any cheating they observe, but only 1.0% of honor code respondents commented that their code influences students to report cheaters. As we will discuss shortly, significantly more students talked about the lack of peer reporting on their campuses (category 24).

We see significant differences between code and non-code students when they talk about how instructors and administrators help prevent cheating, for example, in the rules instructors provide regarding acceptable and unacceptable behavior in their courses (category 8). Only 14 honor code students (0.6%) mentioned the role played by instructors and administrators, whereas 53 non-code students (2.7%) discussed their importance. This may suggest that individual instructors and administrators play a more important academic integrity role on non-code campuses, where rules may vary widely from course to course and program to program. On honor code campuses, rules concerning academic integrity are usually centrally controlled by an honor committee and thus generally more uniform across courses and professors.

Attitudes/Personal Factors Related to Academic Integrity

The second major theme identified in the classifying step of the content analysis included those categories that spoke to attitudes and personal factors related to academic integrity. This theme included 9 categories in both the code and non-code samples and accounted for 663 or 26.8% of the thought units generated by code respondents and 657 or 33.8% of the thought units offered by non-code respondents. The thought units in three of these categories (13, 15, and 20) included rationalizations, justifications, or personal explanations that students offered either for their own cheating or that of others. As shown in Table 2, the remaining 6 categories addressed reasons why students should not or might not cheat in college or offered suggestions on how to reduce cheating.

Over a third of the responses from code students (36.2%) in this theme and almost half (45.7%) of the non-code responses spoke to reasons students do, or might, cheat. The largest category was category 13, a compilation of various justifications and excuses for cheating—intense academic and family expectations and pressures, societal expectations, the desire to excel, the pressure to get high grades, the pressure of getting a good job or gaining acceptance into graduate school, high levels of stress, a highly competitive environment, laziness, lack of preparation, and apathy. Many more of these comments were made by non-code versus code respondents (205 or 10.5% compared to 119 or 4.8%), indicating that students in non-code environments were more inclined to provide justifications for their cheating. However, whatever the environment, the following sample comments suggest that many students face pressures that are very real for them. "Sometimes there is so much pressure to be the best and excel in college so you don't let down your parents and yourself, you feel pressured to cheat when you know you are not ready for an exam." "If [my college] wasn't so damn overbearing, stressful, and competitive, I wouldn't need to cheat." "Societal expectations pressure one to cheat. In an environment where graduate school and careers are looming over our heads, it's a competitive atmosphere."

Many students (95 code and 80 non-code) identified ethical "grey areas" that can serve as justifications for cheating (category 15). Some statements represented attempts to define cheating, while others appeared to stretch the definition of cheating beyond accepted standards. Other statements claimed that students are sometimes unaware that they are cheating. Still others looked beyond the campus environment to explain their cheating. For example, "Cheating, while pathetic, is completely accepted (perhaps encouraged) by society."

A small number of students defended cheating behaviors by claiming that the definition of cheating varies with the type of assignment or the student's regard for the instructor or the course. "Assignments are the greyest area with me because I feel that as long as you learn during the assignment it doesn't matter how you learned it." "People have very different views of what exactly constitutes cheating. For example, I have probably incorrectly footnoted or altered lab results so they 'fit' but this has been more because I didn't realize it."

As shown in category 20, a small number of students offered dispositional explanations for cheating, such as poor character and values, or offered claims that cheating is simply human nature. These explanations appeared with roughly the same frequency in both data sets (26 or 1.1% among code and 15 or 0.8% among non-code students), suggesting that students in both contexts believe that miscellaneous personal characteristics can contribute to cheating behavior. For example, "If people cheated, I would guess that it was because they were depressed, had low self-esteem, and sincerely feared failure."

As noted earlier, 6 of the categories that emerged from student comments about attitudes and personal factors related to academic integrity addressed reasons why students should not or might not cheat in college or offered suggestions on how to reduce cheating. The largest of these categories was category number 14 where students, both code (140 responses or 5.7%) and non-code (70 responses or 3.6%), discussed how individual factors, such as integrity, pride, and upbringing, can inhibit cheating. The larger number of responses from code students in this category suggests greater awareness of a personal responsibility to uphold standards of integrity.

This same trend is evident in category 16, which addresses the wide range of negative emotions that students reported regarding cheating. These emotions were similar among both code students, who offered 102 comments in this category (4.1%), and non-code students, who made 46 comments (2.4%). These comments focused on the students themselves (e.g., guilt from cheating behavior) or on other students (e.g., frustration that others were cheating), and some were school-focused (e.g., anger that the school's reputation might be tarnished by cheating behavior). However, the significantly greater number of negative emotions expressed by honor code respondents suggests that the topic of cheating evokes more negative emotions on their part.

Category 17 includes suggestions offered by respondents for improving the way their school deals with cheating. Non-code students offered many more comments in this category (97 or 5.0% compared to 42 or 1.7%) and offered a wider variety of suggestions than their honor code counterparts, including the possible adoption of an honor code on their campus, having stricter punishments and greater deterrents, encouraging more group assignments, focusing on learning and not grades, and improving testing conditions (e.g., better seating arrangements). A number of non-code students talked about the experience their friends from high school were having at honor code colleges they were attending, and more than one concluded that their own school "definitely needs an honor code." Honor code students generally offered suggestions that might work within the constraints of the existing honor code on campus.

Student comments in categories 18, 19, and 21 address general attitudes toward cheating—e.g., not cheating is an important part of the college experience, cheaters only hurt themselves, or cheating is simply wrong. Comments in category 18 reveal a long-term perspective that focuses on learning even if one's grades might suffer, a sentiment that people do not or should not cheat because the purpose of college goes beyond grades, and a focus on developing good character. Comments made by code and non-code respondents were similar in tone and frequency (64 or 2.6% of the honor code respondents and 68 or 3.5% of the non-code respondents), suggesting that general attitudes toward cheating are similar, regardless of context.

Category 19 includes general thoughts expressed by respondents regarding the negative consequences of cheating behaviors, and both the code and non-code responses suggest that many students feel that cheaters ultimately hurt only themselves, either by getting selected out of college (e.g., failing, expulsion), or having their unethical behavior eventually catch up to them. The following comments, from a code and non-code student respectively, are indicative of the similarity of comments between the two groups in this category. "If I were to cheat, I would only be cheating myself out of essential educational development." "I feel that if you cheat you are only hurting yourself." Similar numbers of honor code (54 or 2.2%) and non-code (52 or 2.7%) students offered such comments.

Another category capturing student opinions about why people simply should not cheat was category 21, student comments suggesting that cheating is fundamentally wrong. As one student flatly stated, "Cheating is unacceptable at any level." Again, the comments from code and non-code students were similar in tone and number (21 or 0.8% of code students versus 24 or 1.2% of non-code students).

Institutional/Contextual Factors Related to Academic Dishonesty

The third theme to emerge from the classifying step of the content analysis includes comments concerning institutional and contextual factors related to cheating. There were many more comments from non-code students in this category (620 thought units accounting for 31.9% of the total non-code thought units) than code students (569 thought units or 23.0% of the code total). Although several different subthemes emerged, this theme was dominated by comments that spoke to why existing academic integrity policies may be ineffective (category 22) or even facilitate cheating (category 25), the fact that cheating does occur (categories 22a & 22c), and the problems students have with honor codes (categories 28 & 29).

The 168 code student statements (6.8%) in category 22 suggest that some students view their schools' honor codes as ineffective. Students remarked that cheating does occur on campus, that the honor code may be too vague to be effective, that honor codes simply don't work, that the code is not effectively enforced, and/or that students may not always know or understand all aspects of the code. For example, "Cheating does occur, no matter what the circumstances." "I myself am very hazy on many points of the honor code because I've never read the handbook."

Categories 22a, 22b, and 22c suggest that academic integrity policies at non-code colleges are also sometimes viewed as ineffective. For example, 146 statements (7.5%) were made by non-code respondents regarding a lack of understanding or knowledge of the school's policies and/or penalties regarding cheating, 53 statements (2.7%) suggest that cheating occurs at the respondent's school and in college in general, and 48 statements (2.5%) included personal admissions of cheating. These 247 statements, which account for 12.7% of all comments offered by non-code students and represent the single largest category of non-code responses, are strong evidence that there are substantive problems associated with the conventional academic integrity policies found on most campuses.

As suggested by category 25, a potential problem with honor codes is that a significant number of students believe that honor codes make cheating relatively easy. Not only does the lack of supervision associated with honor codes apparently provide opportunities to cheat, some students believe the lack of monitoring also makes it unlikely that cheaters will be caught. For instance, "Take home, closed-book, time-limited tests are the stupidest thing I've ever heard of. They're just asking us to cheat." Many more honor code students (98 or 4.0%) than non-code students (25 or 1.3%) discussed the relative improbability of getting caught, underscoring the ease with which cheating can occur in an honor code environment, should a student be inclined to cheat.

Categories 28 and 29 identified specific problems students have with honor code approaches. Although both categories were small (30 or 1.2% and 26 or 1.1%, respectively), they raise important issues. Category 28 speaks primarily to dissatisfaction with honor code processes and student judges, and a disproportionate number of these comments came from a small number of campuses. Interestingly, these were campuses where students have significant autonomy in the administration of the honor code and adjudication of alleged cheating incidents. They were also campuses where most students had very positive comments to offer about their honor system.

Category 29 identified a number of other issues that students have with honor codes. A few respondents (26 or 1.1%) observed that honor codes can stymie discussion, interaction, and collaboration among students, because they are so afraid of being accused of cheating.

A potentially larger problem with honor codes and other academic integrity policies, in the minds of students, is the issue of reportage—the expectation or obligation placed upon students by many policies to report cheating they observe among their peers. As suggested by the responses from honor code students in category 19 (109 or 4.4%), many students have difficulty with this issue for a number of reasons, including a fear of being responsible for having another student expelled, a fear of making an enemy, a concern about reporting on a friend, a fear that the accused student might actually be innocent, a code of silence that exists in some honor code environments based on the sentiment that squealing is worse than cheating, peer intimidation associated with that code of silence, and a fear that the instructor or administrators will not be able or willing to prosecute the offender. For example, "There is a great stigma placed on anyone who acts as a 'tattle tale'. . . . It's like an unwritten code."

Although few non-code schools require students to report the cheating of others, the 69 statements (3.5%) offered by non-code students in category 24 suggest reporting is also an issue on non-code campuses. These statements generally referred either to strong norms discouraging peer reporting or to a belief in an individualistic "every-person-for-him/herself" atmosphere. For example, "I wouldn't generally report someone because it doesn't really affect me, and it doesn't really bother me; unless in the case of direct competition with someone else and I see that person cheating."

Category 27 raised the issue of cheating that occurs in campus subcultures. Using fraternities and sororities as an example, Stannard and Bowers (1970) argued that individuals who belong to groups that demonstrate low levels of peer disapproval of cheating are more likely to cheat. Although the number of code students raising this issue was small (23 or 0.9%), their comments suggest that even on code campuses subcultures can support or encourage cheating, including fraternities and sororities, athletic teams, and premed majors. For example, "Much of the cheating I see go on here is between the football team players. . . . They are actually the only students I have seen cheat on this campus."

Similar views were found in the 54 statements (2.8%) made by non-code students. For example, "Honestly, I think the group which cheats the most (and almost never gets caught) is fraternity members. 'Brothers' are almost 'expected' to help others out."

Category 23 captures various school-related factors that students think are associated with higher levels of cheating, such as large school or course size, majors that have relatively high pressure associated with them (e.g., premed), and the lack of supervision associated with various types of assignments (e.g., take home papers and tests). For example, "I guess it depends on how much I value the assignment, i.e., if I think I am getting a lot out of a lab, then I would not want to cheat on it, but if I think the lab is teaching me very little, then cheating on it by falsifying data would be a better use of my time." Although such sentiments were expressed by both code and non-code students, the non-code students were much more likely to talk about such influences or rationalizations for cheating (161 statements or 8.3% of non-code students versus 65 or 2.6% of code students).

Finally, category 26 addresses the problems students have with teachers and administrators regarding the question of academic integrity. Students remarked that at times, blame should be placed on instructors who provide inadequate supervision or deterrence or who give vague or ambiguous standards for what constitutes cheating in their courses. This finding is consistent with LaBeff, Clark, Haines, & Diekhoff (1990), who argued that students seem to be quite skilled in developing rationalizations or justifications for their cheating and placing the blame elsewhere. Several students also stated that they were much more likely to cheat if they did not respect the instructor. "I think that the cheating at [my college] depends mainly on the reputation of the teacher. People are more likely to cheat if they consider the class a joke." "[My college] is exceedingly hypocritical. . . . I have seen cheating . . . completely and utterly swept under the rug because the professor just couldn't be bothered." Both honor code (50 or 2.0%) and non-code (64 or 3.3%) students placed some blame on faculty for student cheating. The primary difference between honor code and non-code students was that the non-code students had a greater variety of complaints than their honor code counterparts. In addition to remarks concerning a lack of supervision, non-code students also commented on issues such as faculty/TA apathy, lack of respect for the instructor, and lack of connection between the given assignments and course material.

Discussion & Conclusions

One consistent theme emerges from this analysis—students at institutions with honor codes frame the issue of academic integrity in a fundamentally different way from students at non-code institutions. This difference seems to stem from the presence of the honor code and the influence such codes have on the way students think about academic honesty and dishonesty. Although honor code students feel the same pressures from the larger society as their non-code colleagues, they are significantly less likely to use such pressures to rationalize or justify their own cheating. Rather, they refer to the honor code as an integral part of a culture of integrity that permeates their institutions.

One of the most striking quantitative differences between code and non-code students is the large number of comments made by code students concerning theme 1—academic integrity (1,104 or 44.6% of all code comments). This is almost twice as many comments as these code students offered in discussing theme 3—academic dishonesty (569 or 23.0% of all code comments). It is also double the number of comments made by non-code students on issues related to academic integrity (550 comments or 28.3% of all non-code comments). Almost two-thirds of the quantitative difference between code and non-code student comments in theme 1 is found in three categories—those dealing with policy effectiveness/lack of cheating (category 1), the existence of a moral community on campus that minimizes cheating (category 2), and positive comparisons versus the level of cheating at other schools (category 3). Clearly, code students sense that they are part of a special community that demands compliance with certain standards in exchange for the many privileges associated with honor codes, such as unproctored exams and self-scheduled exams. Bowers (1964), McCabe and Trevino (1993), and others have shown that the level of cheating on honor code campuses is typically lower than on non-code campuses. The comments offered by code students in category 2 suggest that the tradition of honor that exists on their campuses is a major factor in this difference. "Due to the honor code at [my college], students take on the responsibility for maintaining integrity throughout the school." "The honor code is something special we have here. I think it ingrains in most of us that we must respect one another." This talk of community values, communication, the influence of peer pressure, and mutual responsibility when describing the culture of integrity that exists on campus is rarely heard among non-code students. The comparatively smaller number of non-code students offering comments in category 2 tend to focus more on rules and guidelines that are externally imposed—by individual professors, by individual programs, or by the school.

This result is particularly interesting when one examines the comments in category 13—a compilation of the various pressures to succeed that students experience while in college. It is clear from both prior research (e.g., LaBeff et al., 1990; McCabe, 1992) and these comments that much of the cheating in which college students engage is driven or justified by the pressure to succeed. As suggested in Table 2, foremost among these is a need to meet the expectations of family, graduate schools, and prospective employers. Several students even justified their cheating by noting the need to maintain a minimum GPA to retain their financial aid awards. What is most interesting about the data in category 13 is the fact that it is one of only a few categories in this analysis with a substantive number of responses where there is little difference in the tone of the remarks offered by code and non-code students. Of course, it is not surprising that code and non-code students would feel the same pressures to succeed, because they are competing for the same graduate school admissions and the same job opportunities. Yet, in spite of facing similar pressures, we know that code students cheat significantly less than non-code students (Bowers, 1964; McCabe & Trevino, 1993). It seems that as students on honor code campuses weigh their responsibilities as a member of a community that is striving to be moral against the very real pressures of the outside world, a large number are deciding in favor of the community's standards and accepting the corresponding responsibilities. The large difference in the frequency with which code (119 or 4.8%) versus non-code (205 or 10.5%) students spoke about justifications or rationalizations for cheating offers additional support for this view.

Although honor codes have generally been the most effective and widely used way to achieve such goals, they are not the only way. Indeed, the language used by several non-code respondents suggests that they think it may be possible to develop a "quasi-honor system" at non-code schools where expectations regarding cheating are clearly communicated to students, where moral socialization takes place, where students are encouraged to know and to abide by rules of proper conduct, where policies and guidelines regarding cheating are established, where mutual respect between professors and students occurs, where cheating is taken very seriously, and where some kind of honor system may exist in certain courses or programs. A number of non-code students expressed a desire for their schools to pursue such goals.

Most code students see themselves as part of a moral community that offers significant trust and freedom and has corresponding rules and expectations that must be honored to preserve that trust and freedom. Previous quantitative research on cheating (Bowers, 1964; Campbell, 1935; Canning, 1956; McCabe & Trevino, 1993; McCabe, Trevino, & Butterfield, 1996), and the comments offered by students in this analysis, suggest that this community approach is quite effective in controlling academic dishonesty among college students.

Although a number of non-code students expressed a desire to see at least some elements of an honor code introduced on their campuses, this will not happen easily or quickly. Honor codes seem to be successful when the vast majority of the student community understands that each student plays a vital role in the success of the code. Developing this understanding and getting individual students to understand and accept such responsibility is an intensive process. On larger campuses, where commuter students, part-time students, and students living off campus often fail to develop the strength of community membership that may be required to support an honor code, the task may be even more difficult. Yet the experience of the University of Maryland at College Park demonstrates that even in these environments students will respond to well thought out academic integrity initiatives (McCabe & Pavela, 1998).

Based on the content analysis of the student comments generated in this study, we are not surprised. For example, with the exception of the comments they offered on how their schools might reduce the level of cheating on campus (category 17), we see little difference in the tone of the comments offered by code and non-code students in theme 2—attitudes and personal factors related to academic integrity. Not surprisingly, we see that code and non-code students experience the same pressures to succeed (category 13), make reference to similar personal ethical standards (category 14), have questions about the same ethical grey areas (category 15), have similar negative emotions about cheating (category 16), and so on. In essence, we see little difference in the individual issues code and non-code students face, suggesting that there are few, if any, substantive differences in the attitudes and personal factors they bring to campus. The very strong and obvious differences that exist between these students when they talk about moral communities, as they do in category 2, or when they talk about the lack of cheating on their campuses, as they do in category 1, are clear reflections of the very different cultures that develop on code versus non-code campuses when it comes to issues of integrity. Pursuit of initiatives that might move a campus closer to such a culture would seem to be worthy of consideration by any college or university. Although some might dismiss such a goal as idealistic, the data from prior research that offer convincing evidence of the lower levels of cheating on campuses with honor codes, the comments of honor code students analyzed in this content analysis, and the success of initiatives with "modified" honor codes argue otherwise.

Although honor codes seem to be one of the most effective strategies to achieve such goals, they are not perfect. Some students reported that honor codes can create a stressful and fearful atmosphere, one that stymies intellectual discourse and discussions about cheating, and others expressed concerns about student judges and honor code rules and procedures. Such comments underscore the fact that honor codes, as successful as they may be on some campuses, do not just happen. Indeed they require significant effort on the part of both students and administrators to implement and maintain. In addition, other approaches can work when they receive adequate support and attention from the campus community (McCabe & Trevino, 1993). Such successful approaches typically contain many of the critical elements that seem to make honor codes successful—student involvement, community dialogue about issues of academic integrity, support from all campus constituencies, and mutual respect among these constituencies. The comments heard from honor code students in this analysis suggest that such efforts pay significant dividends.

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Toward a Constructivist Framework for Guiding Change and Innovation in Higher Education

Introduction

The authors of *Exploiting Information Systems in Higher Education: An Issues Paper* (JISC, 1995) identify several trends that will characterize higher education in the next decade: greater competition for funds and students; more efficient management; possibly fewer institutions, some very specialized; more demanding students who will want flexible teaching patterns to enhance their career prospects; more challenging learning and research programs; and closer integration at regional and local levels while networking internationally. For many countries, central to the vision of higher education in the millennium is the expectation that it can make a distinctive contribution to the development of a learning society, not only by nurturing notions such as lifelong learning but also by enhancing their capacity to meet international standards as these relate to teaching, scholarship, and research (National Committee, 1997, p. 7).

Few would argue that these new directions require fundamental rethinking about the purpose and structure of higher education, because universities in many English-speaking countries are "being transformed from sheltered institutions of the pre-modern world to public service organisations in a modern (or, some would suggest) post-modern world" (Robertson, 1994, p. 313). The dilemma for higher education institutions is exacerbated, for they are experiencing relative financial contraction with increase in demand. Davies (1997) notes that this situation "seems to be the dominant one at present in the United States, United

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Kingdom, most of Western Europe (apart from perhaps to a lesser extent, Germany and France), certainly in Eastern Europe (in the development of the market, post-Communist economy) and in Australia" (pp. 131–132). Yet, while the keys, in broad terms, to effecting successful change, well synthesized by Kirkpatrick (1985) over a decade ago, continue to be empathy, communication, and participation, in actual practice these attributes are frequently found wanting. Too often new approaches are introduced by executive fiat or through a centralist management strategy, or at worst through *ad hoc* and hurried planning interventions in response to years of benign neglect. It seems a rarity indeed for academics to genuinely feel that they are part of a meaningful, participatory decision-making process that values their experience or even their instinct for seeing potential pitfalls. Berman and McLaughlin (1978) in a four-year study of close to three hundred projects underscored the importance of effective involvement and change strategies in education, noting that these "could spell the difference between success or failure, almost independently of the type of innovation or educational method involved; moreover, they could determine whether teachers would assimilate and continue using project methods or allow them to fall into disuse" (p. vii).

Academic Culture and Decision-Making

Organizational change and diffusion of innovation in higher education have been the subject of numerous analyses in recent years, many focusing on the cultural realities of academic leadership and decision making (see also Baldridge & Riley, 1977; Masland, 1985). Although there is recognition that the inner workings of an institution are governed to a large measure by external factors, most notably the magnitude of the grants provided by government and conditions under which these are supplied (Davies, 1997, p. 132; see also Leslie's, 1995, discussion of Resource Dependency Theory), there are good reasons for focusing on the building and management of institutional culture(s):

> A healthy culture can promote identification (who we are), legitimation (why we need to do) communication (with whom we talk), coordination (with whom we work) and development (what are the dominant perspectives and tasks). (Davies, 1997, p. 135)

Birnbaum (1988) identifies four kinds of institutional cultures (collegial, bureaucratic, political, and anarchical), each illustrating different hypotheses regarding the nature of organizational life and change. In his chapter, The Anarchical Institution: Finding Meaning in a Community of Autonomous Actors, he mirrors in a sense the purpose of this article and provides an excellent description of academic decision making in many research-led universities where "the bounds of rationality interfere both with observation and interpretation" (p. 157). Similarly, Bergquist (1992), basing his research on more than one hundred fifty consultations in three hundred colleges and universities, describes a typology consisting of four main cultures interacting within institutions—collegial, managerial, developmental, and negotiating.

An identical model is provided by McNay (1995), who analyzed university functioning according to policy development and operational control, resulting in four main cultures: the Collegium, the Bureaucracy, the Enterprise, and the Corporation. Situating McNay's model in today's higher education context, Davies (1997) suggests that, although there is a trend toward more central policy control from the center to respond to the "imperatives of massification, competitiveness and financial reduction" (p. 137), moving toward an Enterprise institution—with broad policy directions and openness to external influences—would be a preferable option for many universities (p. 137).

Assuming a wider range of organizational types, both public and private, Bolman and Deal (1991) propose four frames (structural, human resource, political, and symbolic), each representing different ways of looking at any organization. The authors use the term "frames" to suggest "both windows on the world and lenses that bring the world into focus" (p. 11). In their view the structural frame "emphasizes the formal roles and relationships"; the human resource frame, tailoring "organizations to people"; whereas the political frame "views organizations as arenas in which different interest groups compete for power and scarce resources," and the symbolic frame sees organizations as "cultures that are propelled more by rituals, ceremonies, stories, heroes, and myths than by rules, policies and managerial authority" (Bolman & Deal, 1991, pp. 15–16).

In their attempt to optimize "human resource" considerations (and therefore minimize structural/political influences along the lines of Bolman and Deal's construct), Bensimon and Neumann (1994) focus their attention on the "team as culture" and effectively argue that leadership "requires the uncovering of meaning that is already embedded in others' minds, helping them to see what they already know, believe, and value, and encouraging *them* to make new meaning" (p. xv).

Although these conceptualizations share many beliefs and values in trying to make sense of organizational processes in order to impact on such social constructs as decision making, leadership and change, distinctive contributions can be traced. Birnbaum's (1988) notion of the anarchial institution with its "problematic goals, unclear technology and fluid participation" and cybernetic organization, where the leadership "not only ensures that systems are in place for collecting, analyzing, and disseminating data but is also concerned that forums exist in which the various constituencies interested in this data can interact" (p. 220) falls into this category. In a similar vein Bergquist (1992) draws our attention to the importance of "fully appreciating the need for a creative integration of the four cultures" (p. 128) and, though essentially in harmony with McNay's (1995) model of university culture and organization, underscores the necessity "for process-oriented and attitudinal change in association with structural alterations" for organizational improvements to occur (p. 190; see also Lueddeke, 1997a, p. 167, for a model juxtaposing Lindquist's [1978] strategies for change and Gaff's [1975] change categories). Bergquist further suggests that Bolman and Deal's (1994) most important "contribution to understanding organizational dynamics comes through their articulation of the symbolic frame built not on the basis of contemporary management theory but on anthropology, linguistics and sociology" (p. 226). One of their essential arguments is that organizational improvement is a function of attitude change which "may occur in the context of a search for personal meaning within an organizational context and of an organization's construction of symbols, rituals and stories that support this search" (Bergquist, 1992, pp. 227–228). Indeed, it is this emphasis on personal "meaning-making" and repudiation of "individualism, hierarchial relationships, bureaucratic rationality and abstract moral principles" (Blackmore, 1989, p. 94) that predominates the works of these authors and that forms the basis of the change model proposed in this article.

Although it is now well recognized in academic circles that the organizational dynamics of higher education are far different from the machinations of the corporate world, governments with their sights on "bottom line" accounting are increasingly nudging higher education systems in these directions, thereby undermining the conventional notion of universities as generally autonomous entities. It is for this reason that Davies (1997) rules out the move toward the Corporation model, with "its strong policy direction in most domains, and intrusive control of operational detail" (p. 136). In like manner, Barnett (1998) confronts the authors of the British report, *Higher Education in the Learning Society* (National Committee, 1997), for their myopic view of the learning society "as the continuing replenishment of human capital" (p. 14) for economic advantage as opposed to calling for "a genuine higher learning fostering human propensities *for* change and contestability, *for* uncertainty and unpredictability" (p. 20). One of the implications of these observations is that those responsible for managing change would benefit from a better grasp of the change process itself, in particular in how the inevitable tensions that result can be sources of strength rather than weakness. Fullan and Miles (1992) emphasize that "serious educational reform will never be achieved until there is a significant increase in the number of people—leaders and other participants alike—who have come to internalize and habitually act on basic knowledge of how successful change takes place; . . . no change would be more fundamental than a dramatic expansion of the capacity of individuals and organizations to understand and deal with change" (p. 745).

Purpose of Article

Although attention on effecting successful change has been growing, judging from the international literature on change practice (see, for example, Foley, 1995; Trow, 1998 [UK]; Dunkin & Barnes, 1986 [Australia]; and Samad, Fraser, Fish, & Fraser, 1995, [North America]), there appear to be few useful models to help guide the process. The main purpose of this article, therefore, is to provide a rationale for the types of change implementation strategies required in higher education today and, with reference to models of organizational behavior and constructivist learning theory, define essential stages and components for a framework that suits the actual decision-making processes and environments of higher education.

Adaptive and Generative Processes of Change

In a number of countries (e.g., the United Kingdom, Australia, Canada), the current challenges facing higher education have prompted the establishment of review bodies to determine the universities' future role, structures, and priorities. These inquiries, stimulated largely by governments' incapacity or unwillingness to fund increasingly expanding and diverse systems, have demonstrated support for treating higher education as a public investment and quickened the likelihood of managing major change activity from the center. These scenarios are in keeping with findings from the literature on how fundamental change occurs. For example, Everley and Smith (1996) cite Levine's (1980) conclusions that the "likelihood of change is enhanced when there is a crisis in the environment, when people have a shared interest in change, when there is a power imbalance in the environment, when the environment has experienced structural changes, and finally when it is consistent with the *zeitgeist* or spirit of the times" (p. 219).

Senge (1990) points out that "adaptive" or "survival" learning, which lies essentially at the core of many existing change models and theories, summarized by Nordvall (1982), is not enough as we approach the next millennium. Though a number of writers (e.g., Havelock with Zlotolow, 1995) acknowledge that change results from external and internal pressures and that responses seldom follow a linear or straightforward pattern, they rarely take into account the true nature by which decisions are actually made in higher education (as one example, see Trow's [1998, p. 96] critique of the UK Dearing Committee report), reasons why the pace of educational reforms has historically been slow, and possible ways of strengthening the process of change. In many countries typical solutions to external (top/down) demands have generally followed the course of least resistance, for example, by modifying existing practices, some of which have been imported to suit local conditions. Although these are reasonable approaches, it may be argued that they can easily lead to a state of mediocrity or waste of the human potential to create. To cope with the new realities facing organizations, Senge (1990) suggests they need to learn not only how to survive but also how to evolve into *learning organizations* that link survival to "generative learning," learning that increases the institution's or individual's capacity to create new solutions to increasingly complex problems, recalling one of Einstein's reported insights that "the significant problems we face cannot be solved at the same level of thinking we were at when we created them."

A helpful construct in analyzing change is Bolman and Deal's (1991) approach to matching frames (i.e., structural, human resource, political, and symbolic) to specific change initiatives, applying such criteria as the importance of commitment and motivation, the degree of ambiguity and conflict present, resourcing and direction of change (e.g., top down/bottom up) (p. 326). Their caution that "change agents who look through only one or two lenses misread or miss entirely the unanticipated consequences of their actions" (p. 370) is well worth noting. Multidimensional thinking seems particularly relevant at a time when resources are tight and demand is high and when "restructuring" may mean focusing "on competitive strengths and market niches, to eliminate weaknesses, to increase productivity and to enhance the strategic capacity of the university while devolving much autonomy to operating units often below the level of faculty" (Davies, 1997, pp. 132–133).

Teaching Improvement in Academia

Generally speaking, fundamental changes in teaching and learning are rare in higher education. Although it is not uncommon to find a few early adopters or enthusiasts (some estimate that there are about 10–15% in each department) who initiate most cycles of innovation, their "track record" for embedding serious educational reforms remains rather weak. In most universities, teaching continues in much the same way as it has always done. The lecture still reigns supreme. Along with the usual arguments of resource constraints, there are at least three other reasons why change is problematical. One is a function of the bureaucratic/political dynamics in which institutions operate; the other two have both human resource and collegial dimensions. An aspect closely associated with the anarchical institutional type relates to the organizational concept of "loose coupling," where, as Becher and Kogan (1992) assert, there is "a tenuous relationship between structure and process and the formal administration does not greatly influence methods of teaching" (p. 132). Role conflict is another factor that makes the introduction of change difficult. Crimmel's (1984) observation, "Hired to teach, but paid to publish," presents a fairly accurate picture of the paradox facing most academics. A third aspect concerns leadership dimensions. Boice and Myers (1984), in their study of psychology chairs, found,

> Their primary goals as Chairs were to gain appreciation from colleagues for their behind-the-scenes work and sooner or later, to stop chairing. As for their faculty, Chairs claimed that they wanted little more than autonomy from them: ideal faculty were seen as those who find productivity and self-sufficiency on their own. (p. 289)

Bennett (1983) adds another variable by identifying "role transition" as an obstacle to leadership and the management of change. His argument is based on the fact that taking on a chair's role demands shifting perspectives from specialist to generalist, from thinking individualistically to thinking together, from shifting loyalty to one's discipline and peers to that of a single department. In consequence to these realities of university life, especially those that profess to be research-led, Birnbaum (1988) concludes that a beginning step for developers might be to abandon "some cherished ideas" about organizational behavior:

> Among these ideas are that organizational leaders play critical roles in institutional processes, that institutions have goals, that individuals can specify their preferences, that chains of cause and effect lead individuals and organizations to take certain actions in order to effectuate outcomes they consider desirable, that problems are solved by decisions, and that decision making is a primary occupation of organizational participants. (p. 154)

Unless there is "a state of acknowledged crisis" (see Birnbaum, 1988, p. 205), under normal circumstances it might therefore be best to manage change initiatives "in an unobtrusive manner by introducing small changes rather than highly visible ones" (Bergquist, 1992, p. 219). Viewing organizations through Bolman and Deal's (1991) perspectives reinforces the notion that events "can have very different meanings for different people" (p. 245) and that in introducing a new idea it is wise to "first determine the way in which the idea or program will be interpreted by those now there—in light of their past history in the organization and the organization's dominant culture(s)" (p. 228).

Massey, Wilger, and Colbeck (1994) in their study of determinants supporting or constraining effective teaching concluded that the main obstacles seem to be the teaching-research dichotomy, tight resources, prevailing methods of reward, and "fragmented communication patterns" (p. 11). Dysfunctional communication in a department, which essentially prevents effective discussion among academics about substantive issues including teaching improvement, can be attributed to such factors as autonomy, specialization, lack of civility, generational splits, and personal politics. It is not surprising , therefore, that

> effective departments are distinguished by [a] supportive culture for undergraduate teaching, frequent interaction among faculty, tolerance of differences, generational equity, workload equity, and course rotation. (Massey, Wilger, & Colbeck, 1994, p. 14)

Recent research corroborates these findings and acknowledges the chair's role as crucial "in creating and sustaining a departmental culture that supports and encourages excellence in teaching" (Murray, 1997, p. 86; see also Lueddeke, 1997b).

Identifying Change Models for Higher Education

Fullan and Miles (1992, pp. 745–746) remind us that reforms frequently fail because we use models of change that are too simplistic or are based on false assumptions about the change process itself (see also Lueddeke, 1997a). Consistent with Weil's (1994, p. 150) conclusions on managing change, they caution against using rational planning models for complex change and highlight the importance of systemic change, that is, the hypothesis that reforms must concentrate "on the development and interrelationships of all the main components of the system simultaneously" and "address deeper issues of the culture. Along with the classical sequential stage models for change, (e.g., moving from need to solution to implementation), Capon (1996) considers three additional approaches to managing change: diffusion models that are primarily concerned with the adoption of change through social systems; complex organizational models that study change as a function of variables such as centralization and size; and conflict models that focus on social conditions and how these affect "the level of conflict and the form of change" (p. 52).

There are several dimensions by which planned change models can be further analyzed. One approach is according to major schools of organizational thought such as the rational, human relations, power, and eclectic (Levine, 1980). Another theory base for distinguishing change models is related to the concept of "openness." In this regard, Senge's (1990) observations are once again noteworthy and are consistent with other attempts at explaining how professionals may be swayed to take on new ideas (e.g., see Mezirow's [1981] model of transformative change and Schön's [1987] concept of reflective practice). Senge distinguishes between *participative* openness and *reflective* openness, both of which need to be integrated or else "the behaviour of *being open* will not produce real openness." Although the general idea behind participative management is well understood in education (although not always practiced), the notion of "reflective openness" may be less so, especially in higher education. Reflective openness means

> looking inward and starts with the willingness to challenge our own thinking, to recognize that any certainty we ever have is, at best, a hypothesis about the world. . . . It involves not just examining our own ideas, but mutually examining others' thinking. (p. 278)

Senge's emphasis on openness may be particularly timely for higher education institutions, which, if they are indeed proceeding through some form of metamorphosis in redefining their role in society, as some writers suggest, may yet have to endure an unsettling process of "reculturing" as they learn to transition from cultures of "individualism" and "balkanization" to those that rely on collaboration and critical inquiry (Hargreaves, 1995, p. 16). Along similar lines, basing their research on interviews with staff from fifteen colleges and universities, Bensimon and Neumann (1994) abandon a functionalist perspective, which assumes that "managers can manipulate toward desired ends . . . and even transform cultures in line with desired goals" (p. 24) to considering team leadership as "a cultural entity" with "a fluid set of beliefs, understandings and differences" and a "focus on whether and how the team's members think and act together [and concern for] patterns of participation, including patterns of inclusion and exclusion" (pp. 30–31).

Criteria for Selecting Change Models and Strategies

The main benefit of arriving at a practical framework for guiding change and innovation in higher education is that it may help to illuminate what is basically a complicated process (Lippit, 1973). Von Bertalanffy (1968), recognized for his general theory of systems, has noted that conceptual models are essential in any attempt at building theory. Other advantages of conceptual models have been inferred and include their capacity to explain various aspects of human behavior and interaction, integrate what is known through research and observation, and guide complex human processes. Based on the assumption that in higher education few factors or inputs and outcomes are predictable, I opted for the development of an "open"/verbal model (i.e., a working hypothesis) rather than one that is predictive or mathematical (i.e., algorithmic). While considering a generic change model for higher education, my main concern was also to depict an "organic" rather than "mechanistic" process that seems to be borne out by observations and reflections on enacting change in higher education (e.g., Weil, 1994; Bocock & Watson, 1994), where developments are frequently undertaken "without a crisp, clear definition of where they are headed." Lester (1997) points out that technical-rational problem-solving, which may have had "degenerate validity in industrial or pre-industrial contexts" is limiting, because "it sees knowledge as being stable, general, and separate from the learner or knower, capable of being codified."

In discussing underlying assumptions and principles for a workable model for change, this view seems particularly incongruous in the light of today's realities where "the major issues we face . . . more often contain messes, divergent problems and conflicts of values which require more systemic and creative ways of thinking and acting" (Bolman & Deal, 1991, p. 2) and where creative, intuitive, and critical processes are needed in order to develop new perspectives and possibilities. While acknowledging the limitations of general systems theory when applied to human systems, Bolman and Deal (1991) have evolved a useful set of propositions that build on systems theory and cybernetics to help explain how institutions tend to maintain steady state environments and respond to changes in the internal and external environments (pp. 317–318).

My search for a more realistic framework or decision model was further informed by an investigation carried out to identify significant concepts or factors that promote change efforts in higher education. (See Table 1.) That study (Lueddeke, 1996), using a grounded theory research approach, extrapolated six main dimensions, which were then used to examine case studies drawn from both Canadian and UK higher education contexts. For the purposes of this article, only the dimension relating to Principles of Change and Innovation is highlighted and briefly discussed.

Although a full discussion of each of the following features is beyond the scope of this article, it is hypothesized that a generic framework/model for change would need to encompass elements outlined as follows:

- *Integrate experiential and dynamic praxis (interrelating theory, practice, and experience),* ensuring that change initiatives in higher

TABLE 1
Summary of Factors Facilitating Change and Innovation

Change Dimension	Summative Factors
1. Development Focus	Process (Curriculum / Student Learning)
2. Organizational / Management Culture	Balancing Collegial / Managerial Norms / Values (Conservative / Radical Tendencies)
3. Approach to Change	Problem Solving
4. Role of Change Agent(s)	Process Helper
5. Principles of Change and Innovation	Experiential / Praxis Collegial / Collaborative Change as Learning: Adaption and Generative Credibility / Meaningfulness Verification / Multi. Contexts
6. Considerations for Teaching and Learning	Systems Approach to Curriculum Planning New Technologies / Critical Reflection Cognitive Models / Constructivism

education are rooted in "authentic" and problematic experience; change model should provide opportunities for a cyclical experiential learning process involving experience, observation and reflection, abstract reconceptualization and experimentation.

- *Encourage collegial and collaborative (vs. managerial) decision making,* emphasizing linkages and relationships, not structures; process is active, authentic, social, and collaborative, because it occurs during the process of development and involves a team of participants who cooperate to make decisions. "Team-oriented leadership assumes that differences exist among people; it searches actively and affirmatively for them and seeks to bring them to light" (Bensimon & Neumann, 1994, p. 18).
- *Demonstrate a capacity to adapt to existing practice and to changing circumstances,* recognizing that many change efforts are really adaptations of existing practice (Lindquist, 1978, p. 223).
- *Focus on reflective, generative and transformative activity,* stressing the synergy of the creative process itself; organic/systemic and recursive (vs. mechanistic) approaches to change efforts, providing a plan for a guided journey and not a blueprint for change; focusing on interrelationships rather than on linear cause-effect chains.
- *Ensure credibility (meaningfulness and acceptability) to the academic "mainstream,"* for example, by demonstrating "respect for academic autonomy; trust in the academic community; recognition that quality rests ultimately on high professional standards" (Stoddart, 1995) or professionalism itself and provides information that is perceived to be credible by academics.

- *Function largely within ambivalent teaching/learning environments* characterized by their (a) "limited perception, limited cognitive capacity and limited ability to process information" (i.e., bounded rationality models) and where "there is frequent cycling through various decision process stages (Mintzberg, Raisinghani, & Thoret, 1976); (b) "problematic goals, an unclear technology and fluid participation," consistent with Birnbaum's (1988) "anarchial institution"; and (c) emphasis on organizations as cultures "propelled more by rituals, ceremonies, heroes, and myths than by rules, policies and managerial authority" (Bolman & Deal, 1991, pp. 17–18), and "the facts of the social world are the facts that humans have chosen to construct" (pp. 304–305).
- *Provide a framework for verification purposes and multiple applicability* (for example, resource, staff, policy, curriculum developments) in higher education contexts, possibly through evaluation and action research.

Constructivist Influences

Complementing the above features, the proposed framework or model for change in higher education (see Figure 1) differs from other rationalistic change approaches in that its philosophical underpinnings are guided by the field of learning and knowledge acquisition known as constructivism (see, for example, Rorty, 1991). Olssen (1996) has commented on the wide influence of this approach to learning whose "outcomes depend upon the prior knowledge and interests of the learner . . . involves the *construction* of meanings in a continuous and active way" (p. 284). Unlike cognitive psychology, which is based more on the "logical scientific" or traditional "absolute" paradigm to the creation of new knowledge, constructivists perceive knowledge as a personal process of meaning-making "in which the world that the learner knows is a world which the learner constructs" (Inglis, 1996, p. 34). Though applications of constructivist principles are diverse (e.g., in reading, science, learning theory, curriculum studies, and the like, [Olssen, 1996, p. 284]), its propositions have not (to my knowledge) been utilized in illuminating the process of change in higher education.

According to the literature, constructivism is informed by three primary propositions, which originate, in the main, in situated learning theory (Jonassen, Davidson, Collins, Campbell, & Haag, 1995; Savery & Duffy, 1995). Situated learning models argue that learning is a function of the context within which it occurs; that "our personal world is constructed in our minds and that these personal constructions define our personal realities" (p. 9), and that the main stimulus for change is cognitive conflict or puzzlement. Closely related to these tenets is the view from social constructivism that "knowledge evolves through social negotiation and through the evaluation of the viability of individual understandings" (Savery & Duffy, 1995, p. 31). When viewed in terms of power and authority issues, an important consideration of constructivism, at least according to many feminist and postmodernist theorists, is that "truth is partial, dependent on position and context" (Maher & Tetreault, 1992, p. 38), the former referring to gender, race, and class.

These constructivist assumptions seem plausible and relevant when applied to change process in higher education, where it has become increasingly difficult to steer a clear course of action given any complex developmental activity. In the universities, where "the mixture of attitudes and values involved is complex and has to be, as academic leaders operate in an intensely political environment" (Baldwin, 1996, p. 7), decisions tend to evolve while new insights are created during the actual change process. Processes of change are therefore principally nonlinear and reiterative. Equally important for change to occur in higher education is the strength of the group in defining problems and creating knowledge. Savery and Duffy (1995) note that "collaborative groups are important because we can test our own understanding and examine the understanding of others as a mechanism for enriching, interweaving, and expanding our understanding of particular issues or phenomena" (p.32). Bensimon and Neumann's (1994) study confirmed that genuine teams, "those that are functionally and cognitively complex" (p. 104) depend on their capacity "to share power with other members of the team [demanding] a lessening of status difference" (p. 111). Rather than calling for shared goals and purposes as the glue to bind teams together, the authors argue that they rely for their "connectedness" or team "convergence" on "shared values, respect, concern, and appreciation" (p. 130).

The Adaptive-Generative Development Model (A-GDM)

In choosing this term to describe the model (see Figure 1) I meant to focus attention on the dual nature of the change process. As discussed earlier, in today's world higher education must learn not only how to adapt to external and internal circumstances but also to act—with increasing resolve—creatively in generating solutions to problems, pedagogical or otherwise. The central assumption that governs the model is that change results from the shared construction of meaning facilitated by a "truly interactive, inclusive team" (Bensimon & Neumann, 1994, p. 130).

The A-GDM consists of a ring diagram to be read beginning with Needs Analysis and ending with Evaluation. The model comprises six interrelated elements: Needs Analysis, Research & Development, Strategy Formation & Development, Resource Support, Implementation & Dissemination, and Evaluation. These main categories are further divided into twelve subcategories, each of which may lead developers to the formulation of specific questions determined by the nature of a particular change initiative (e.g., relating to curriculum design). Where appropriate, I make reference to the Bolman and Deal (1991) multiframe approach and to other writers to provide an organizational perspective or orientation through which to view change practice.

Needs analysis. Morrison (1976, p. 9.1) describes needs as "existing any time an actual condition differs from a desired condition in the human, or 'people,' aspect of organizational performance or, more specifically, when a change in present human knowledge, skills, or attitudes can bring about the desired performance." In terms of teaching and learning, perhaps drawing on Bolman and Deal's (1991) frames concept, new forms of reflective action research (Schön, 1995) are particularly attractive in defining areas requiring attention and in building interpersonal relationships, the second stage in Havelock with Zlotolow's (1995) planned change model. As outlined later, the main advantage of the proposed recursive/nonlinear model for guiding change depends fundamentally on collaboration and on good relationships that build over time.

Research and development. Once a need has been defined, the development "team" attempts to discover how others (within and outside the institution, for example, through site visits or discussion groups [e.g., using the Internet]) have addressed the problem. New information may modify understanding of the concepts and practices of Needs Analysis. Keller (1995) asserts,

> College and university administrators will need to take more diagnostic or systematic approaches to dealing with these changes in the environment and within their walls, just as professors became more analytical and methodical in studying scientific and social problems in the first two-thirds of the century. Scholars replaced haphazard inquiry and ingeniousness with organised research. In the same way, campus leaders need to replace casual, political and crisis-oriented administration with information-grounded strategic innovation. (p. 6)

Moreover, Keller observes that in the future considerable emphasis has to be placed on "market" and "institutional" research. While the former will require soliciting "feedback from students, faculty, staff, employers, parents, and alumni and then use the best of opinion and observations to improve quality and respond to new situations," (i.e., the human resource frame), institutional research (IR) needs to continue to focus on enrollment forecasting, operational efficiency, resource allocation, the

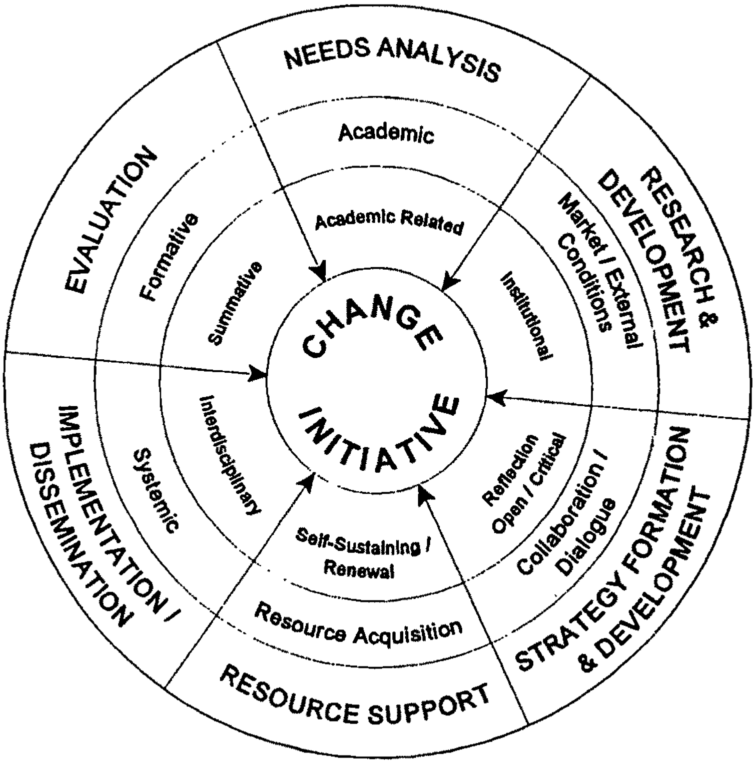

FIG. 1. The Adaptive-Generative Development Model

preparation for an institutional future (i.e., the structural and political frames).

Strategy formation and development. The change initiative needs to be debated by all those (advocates/enthusiasts *and* critics) who may be impacted. Bolman and Deal (1991) posit that a multiframe strategy needs to be employed, for "unless each issue is matched with an appropriate response, the intended changes will fail—or backfire" (p. 397). In distinguishing between real and illusory teams, Bensimon and Neumann (1994) assert that learning how to use teams for reflective dialogue (where "meanings can be constructed" [p. 50]) is perhaps one of the most important tasks of team builders. This thinking together "is likely to involve listening to voices that have not traditionally been at the center of the decision process rather than favoring conventional (and dominant) views" (p. 51). Mintzberg's concept of "emergent strategy formation" may be particularly appropriate in the early stages of developing an innovation. In practical terms this may mean holding discussions with diverse focus groups or circulating a position paper to start the debate, that is, integrating the first two components of the A-GD model and obtaining input from all key stakeholders, synthesizing the information, and bringing forward recommendations. This process of social negotiation, although time-consuming, is "primary in providing alternative views and additional information against which we can test the viability of our understanding and in building the set of propositions (knowledge) compatible with those understandings" (Savery & Duffy [1995], p. 34, citing Cunningham, Duffy, & Knuth [1991]). In higher education, it is essential that mainstream academics become involved in the developments preferably across disciplinary boundaries and in both formal and informal settings. Indeed, according to Miles and Ekholm (1991), the metastructure that seems most critical for successful institutionalization of new structures is a clearly identified internal group (and associated roles, including trainers, mentor teachers, and so forth). Though there are no easy recipes for bringing about change, Everley and Smith (1996) point out the importance of planting "the seeds of positive attitudinal change" and "reducing resistance to change [as] a key part of this process and of institutionalization" (p. 227). Bolman and Deal (1991) provide a powerful rationale for the need to respond to conflict and loss inevitably brought about by major change:

> Change usually benefits some people more than others: it creates winners and losers, which is bound to produce conflict. Change agents often underestimate the opposition or drive conflict underground. Attention to the political dimensions of change implies recognizing competing interests and creating arenas with rules, roles, and referees to provide conflicting individuals and groups with an opportunity to air and negotiate their differences
>
> Change also produces loss, particularly for those who are the targets rather than the initiators of change. Old patterns, familiar routines, and taken-for-granted meanings are all disrupted by organizational change. The deeper the loss, the more important it is to create rituals of transition—opportunities to both celebrate and mourn the past and help people evolve new structures of meaning. (p. 401)

Educationalists such as Senge (1990) and Schön (1987) would likely agree with Bolman and Deal's analysis and Schein's observation that culture can be changed only when "implicit and silent assumptions" are "brought to the surface and confronted" (Schein, 1985, p. 306). In general terms this requires open/critical reflection on significant problems or issues and "gaining greater insight into both the context and the influence of . . . work on that context" (Willis, 1995, p. 14). The result of this critical reflection, it is argued, could in turn lead to what Mezirow (1981) coined "perspective transformation." Building the "team-as-culture" depends not on, what Bensimon and Neumann (1994) describe, "the team builder's skill in instrumental management but on his or her relational and interpretive abilities" (p. 106). It also necessitates an authentic desire to share power with other members of the team, . . . a lessening of status difference" (p. 111).

Several practitioners (e.g., Kommers, Jonassen, & Mayes, 1992) advocate the widening use of cognitive tools (or Mindtools) for knowledge representation or construction. Tools such as databases, semantic networks, expert systems, it is argued, may all help to extend the thinking processes of their users. Others, for example, Jaques and Clement (1994), point out the potential that understanding and application of cognitive processes (e.g., serial and parallel processing) and information complexity can have on problem solving and decision making. And still others advocate the use of "the logic of metaphor and analogue" (the symbolic frame), which can "provide some wonderful insights into the nature of complex situations and allow us to embrace non-rational thinking and to integrate it with reason, . . . the synthesis of the logic of the poet with that of the physicist" (Bawden, 1992, p. 312). Weil (1994) describes the power and potential of story (getting at "essence and pattern" through personal narratives) as a means of understanding and creating change in organizations:

> People within institutions are not spectators to the story being written by those "at the top"; . . . they actively make their own meaning when a radical new departure is taken. That experience becomes the raw material from which new stories are created or old stories are reasserted with a vengeance. (p. 153)

Resource support. One of the conclusions deduced from the research literature and case examples is that senior management will be more supportive of an innovation if they can see its potential benefits, understand implications for resourcing, and are part of the decision making to bring it about. Unsuccessful projects can often trace their failures to not considering the importance of bringing senior academic and administrative staff together at an early stage to help guide and to identify resources (time, money, energy) for major projects. In these times of scarce financial resources seeking *external* seed funds to launch a new project—preferably as a member of a consortium—seems to be a logical and viable option. Havelock with Zlotolow (1995) note, "The resource environment is extremely rich, especially within the advanced countries of this last decade of the twentieth century. . . . The key to success in matching problems with solutions is awareness of this resource universe" (p. 95).

A second major consideration is to sustain the initiative if it proves successful. Building a permanent resource capacity is especially difficult during times of tight budgets but can be facilitated if the innovation demonstrates its compatibility with institutional strategic plans and favorable reaction from mainstream academics. Havelock with Zlotolow (1995) observe, "Getting a place on the real budget, or changing the way the real budget is allocated, represents real systemic change, and it is one of the greatest challenges to any change agent. . . . It can be argued that no system really changes significantly if the allocations in the real budget don't change" (p. 165). (See also Everley & Smith, 1996, for insights in moving from soft to hard funding.) For those wanting to join into the political arena in order to gain resource support, Hargreaves (1995) advises to

> act politically to secure support and resources for the good of your own students and, indeed, all students. . . . Use influence, persuasion, diplomacy, charm, self-mockery. Trade favors, influence power brokers, build coalitions, lobby for support, plant seeds of proposals before presenting them in detail, and find out how what you want meets the interests of others. (p. 18)

Implementation and dissemination. Putting new ideas and developments into practice traditionally follows (from the field of cognitive psychology) the symbolic reasoning paradigm, which essentially implies "that various forms of expert reasoning can be modelled and mapped onto learners' thinking patterns" (Jonassen, et al., 1995, p. 9). Implementation is therefore a matter of following the sequence: summative evaluation, packaging, diffusion and adoption (Willis, 1995). Much emphasis is placed on statistical proof that the innovation works. The symbolic reasoning paradigm is being challenged, as noted previously, by construction/situated learning theorists, who believe that learning (or change) is "necessarily a social, dialogical process in which communities of practitioners socially negotiate the meaning of phenomena" (Jonassen et al., 1995, p. 9). The A-GD model to change, therefore, advocates less reliance on objective data and more concern for involving the change participants in discovering whether or not the initiative is worthy based on their own personal experience with it. Tools for evaluating the effectiveness of the change (e.g., activity logs, portfolios, reflective journals) may be less objective but possibly more revealing and helpful. From the standpoint of implementing educational reforms *systemically*, Fullan and Miles (1992), based on their findings on introducing change, conclude that "(1) reform must focus on the development and interrelationships of all the main *components* of the system simultaneously—curriculum, teaching and teacher development, community, student support systems, and (2) reform must focus not just on structure, policy, and regulations but on deeper issues of the *culture* of the system" (p. 751).

As with the other components of the A-GD model, a key to implementation is team involvement and team learning, which, as Senge posits, starts with dialogue, "the capacity of members of a team to suspend assumptions and enter into a genuine *thinking together*" (see also Bensimon & Neumann's [1994] discussion of the "team's cognitive function" [pp. 41–42] and extensive analysis of "team thinking" [pp. 56–79]). Because of the interdisciplinary nature of a globalized economy, in higher education this collaboration may necessitate involvement of key stakeholders across traditional boundaries—staff, students, employers, professional associations, to name several, involving both "internal negotiation and social negotiation. . . . We debate, wrestle, and argue with ourselves over what is correct, and then we negotiate with each other over the correct meaning of ideas or events" (Jonassen et al., 1995, p. 12).

Evaluation. Evaluation of the effectiveness/efficiency of change efforts requires the application of constructionist methods that are congruent with the general *systemic* nature of the A-GD model. Evaluation in the application of the model is therefore part of the Strategy Formation and Development and Implementation processes and could benefit from Bolman and Deal's (1991) four-dimensional process with a view to determining how changes in one frame have impacted on the others. Unlike traditional approaches to the management of change that stress linear, objectivist, product-oriented, and summative strategies, the A-GD model emphasizes contextual and formative evaluation. Willis (1995) notes that this type of evaluation provides ongoing feedback to the team so that improvements can be made as necessary.

Academic Change Revisited

Returning to the earlier discussion of the problematic nature of academic change and in the light of the A-GD model, the argument being put forward is that the application of the framework would provide a useful context for addressing factors that are integral to the introduction of any change effort. In addition, it is conjectured that reference to the stages within the model could keep team discussions on track and prevent hasty conclusions to be drawn, a criticism often levelled at those contemplating change. Effective use of the model might be guided by questions such as the following:

Needs Analysis/Research and Development

- Have there been previous attempts at introducing the innovation? If so, with what results?

- Which specific courses/modules might warrant consideration? Why?
- What are the main concerns of the mainstream colleagues?
- Are there existing systems in place within or outside the institution?
- Does the departmental plan support this approach?
- What are the pedagogical implications?
- What are the resource implications and what impact could the innovation have on enrollments? Operational efficiency?
- How will the training needs be addressed—staff, students?

Strategy Formation and Development
- What are the specific advantages of the change initiative? The objectives for further exploration?
- Are there mainstream academics who might be interested in formulating a proposal?
- What are the real reasons for resistance (remembering that the mainstream staff members favor evolutionary change (vs. radical), are conservative, have a strong problem/practical focus and rely on peer approval and esteem for much of their motivation in research and teaching [Geoghegan, 1994, p. 14]).
- Can the scope of commitment be increased by getting students on side?
- Are there credible practitioners who might be brought in to speak with the department?
- Are there site visits that might be funded by central services? Should only one group of students be involved initially?
- Who might help to write up a project plan, including resource requirements, timelines, project team members?

Resource Support
- How can the innovation be conceived as an investment rather than as a liability?
- What type of data will convince the department or the institution to provide seed funds?
- How have other institutions managed to secure funding?
- If costs, quality, and flexibility are the main considerations, what arguments can be made for each in line with the innovation?
- How can the innovation become institutionalized and attract hard funding once it proves itself in the long run?

Implementation/Dissemination
- When should the innovation begin its formal trial run?
- What preparation will be given to the students? Other staff?

- Who must, should, could be involved and how?
- What types of qualitative / quantitative data will be found convincing by the department?
- Will the innovation have a cascading effect on other services?
- How will these be monitored?
- How can department members be kept regularly up to date with progress?
- Should other departments be informed? If so, how?

Evaluation

- Which model of evaluation might be useful to consider to gauge student reaction, behavior, academic achievement?
- What criteria will be used to evaluate progress?
- How will developments be closely monitored?
- What documentation will be necessary to prepare formal reports? For whom? Frequency?

The Adaptive-Generative Development Model in Practice

I have applied components of the model and multiframe change strategies in a number of projects. To cite one example from Canada, an early application that stressed collaborative approaches and took account of structural, political, and symbolic dimensions involved the development of an institutional strategy for distance learning (Lueddeke, 1997c). More recently, the framework was applied to the development of institutional guidelines for effective teaching and learning. The project was initiated in response to two main concerns (Needs): external demands for an institutional strategy to guide teaching developments (political frame—in response to the UK Government's teaching quality assessment process using external peer observers) and to help prioritize staff and educational development activities (human resource and symbolic frames). A development group was established and a search began to identify existing models or practices within and outside the United Kingdom (Research and Development). There was particular concern that guidelines evolved elsewhere should have the potential for finding agreement with the academics and students (i.e., human resource frame) and that they should fit in with the political culture of the university and the United Kingdom. A promising set of guidelines, based on international research findings into student learning and best practice as perceived by students and staff, was uncovered in Australia, developed under the auspices of the Australian Vice-Chancellor's Committee. After some deliberation involving not only the development group but also representatives from an internal departmental educational liaison officers' network, including a number of skeptics, it was agreed that the guidelines should be reviewed by a representative sample of staff and students (Strategy Formation and Development). Recognizing that the guidelines could become a useful tool for promoting discussion (particularly involving department heads) on effective teaching practice throughout the institution, two methods for soliciting feedback were agreed upon: face to face interviews with a cross-section of staff and students along with a questionnaire requesting written feedback on the document. Using purposive sampling, it was decided to employ a student graduate to conduct the semistructured interviews and to record the data for interpretation by the planning group. The pro-vice-chancellor responsible for teaching quality was briefed on developments, made a number of suggestions for increasing response rates, and facilitated the financial arrangements for engaging a trained interviewer (Resource Support). Though recognizing the need to streamline and contextualize some of the language, a task undertaken by the planning group, 74% of the respondents (n = 55) agreed with the guidelines as these related to good teaching practice. A final step (largely consistent with structural/political frames) in the Implementation and Dissemination process occurred with the pro-vice-chancellor's circulation to all department heads and educational liaison staff asking for final feedback on the document before proceeding to the academic policy committee and Senate, where it was approved as a new university policy (i.e., largely political/symbolic frames). Although it is too early to tell whether the policy will have a long-term impact on the overall quality of teaching (Evaluation), its use in guiding the development of peer observation schemes and a revised promotions policy appear to be good omens for the future. In the longer term, it is highly probable that its effectiveness will depend, as Bolman and Deal (1991) indicate, "on control mostly through values and culture rather than relying on procedures and systems" (p. 334).

Summary and Conclusion

It is conceivable that the chief strength of the A-GD model framework lies in its capacity to serve as an *aide-memoire*, helping decision-makers to identify actual concerns and to engage academics in what they most enjoy: "To debate and challenge, and though the trend of discussions is usually towards the skeptical and critical by focusing on a larger goal to be achieved, encouraging participation and reflection, negotiating and cultivating supporters." (Baldwin , 1996, p. 7).

Within the present climate of change and uncertainty in which higher education institutions must function, it would seem to make sense to have a few anchors at our disposal to guide the planning of educational improvement efforts, analyze outcomes and avoid the "fogginess" that characterizes the design and evaluation of many projects in higher education (e.g., Gray, 1995, p. 149). The framework for guiding the decision-making process that is at the heart of the Adaptive-Generative Development model described in this article may be a useful starting point to reflect on the challenges of a specific reform or innovation and the extent to which it is situated for the future.

Priorities for the millennium were recently spelled out at the Unesco-sponsored international gathering on higher education, involving 182 member nations and the United States. In their declaration the four thousand representatives propose

> a new vision and paradigm of higher education which should be student-orientated, calling in most countries for in-depth reforms and an open-access policy so as to cater for ever more diversified categories of people, and of its contents, methods, practices and means of delivery, based on new types of links and partnerships with the community and with the broadest sectors of society. (Jobbins, 1998, pp. 8–9)

It remains to be seen whether frameworks such as the one presented in this article can help to steer a course, as Barnett (1998, p. 21) puts it, through "an uncertain world [which] requires the explicit knowledge of uncertainty in our educational strategies."

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Knowledge Production, Publication Productivity, and Intimate Academic Partnerships

Collaboration and engagement in a community of scholars is instrumental to scholarly productivity, particularly among prolific scholars who sustain a commitment to scholarly research and writing over the course of many years (Austin & Baldwin, 1991). Though many collegial relationships are long-term and involve both a personal and professional dimension, there has been little acknowledgment in the research literature of the impact on scholarly productivity of collaborative relationships among academics who are married or who share an intimate relationship and a household.

The 1997 publication, *Academic Couples: Problems and Promises,* edited by Marianne Ferber and Jane Loeb, provided the first readily available documentation of the proportion of faculty with a spouse or partner who is also employed in higher education. Reflecting on the impact of the increase in the proportion of doctorates awarded to women and the easing of anti-nepotism policies at some institutions in the last twenty-five years, it is estimated that of faculty with a partner or spouse, 35% of men and 40% of women have a partner who is also an academic (Astin & Milem, 1997). There are significant variations by both race and academic field in the proportion of faculty with an academic spouse or partner.

Findings from a national survey of senior faculty I conducted in 1996 provide support for the argument that formal and informal collaboration

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among spouse or partners in various aspects of scholarship is not uncommon. Using a sampling method intentionally designed to reach prolific scholarly writers, 750 senior faculty at a random sample of 22 public and private research institutions, matched by rank, department, and sex, were surveyed about collaboration in the research and publication process, including with a spouse or partner. Of the 263 respondents, 64% had given or received feedback from a spouse or partner about a draft of a publication. Twenty-two percent of the respondents had coauthored at least one journal article, book, or monograph with a spouse or partner. There were no statistically significant differences by sex in the percentage of respondents who had given or received feedback about a publication or who had coauthored a scholarly publication with a spouse or partner.

The names of prominent couples whose personal and professional lives are linked come readily to mind. These include literary and artistic couples, such as Virginia Woolf and Leonard Woolf and Georgia O'Keeffe and Alfred Stieglitz; and eminent examples from scientific fields, such as Margaret Mead and Gregory Bateson in anthropology and Marie Curie and Pierre Curie in physics. Though less common than other forms of scholarly collaboration, exploring the reciprocal impact of familial relationships on scholarly productivity offers another way to investigate the social and material conditions that contribute to creativity and scientific innovation and how they vary by gender.

The impact of an academic partner on scholarly productivity would be expected to vary by a number of factors, including the amount of overlap in research areas and skills. The purpose of this article is to identify patterns of coauthorship among academics who have coauthored with a spouse or partner and to determine how they are perceived to be associated with scholarly productivity. I use the term scholarly productivity, rather than research productivity, because not all scholarly publications are empirically based. Scholarly productivity includes a qualitative dimension, to which I will refer as knowledge production or innovation; and a quantitative dimension, to which I will refer as publication productivity. Coauthorship patterns identify situations where having an academic partner is most likely to have a significant impact on scholarly productivity. The study does not extend to include a discussion of other important aspects of faculty roles, such as teaching and service.

Related Literature

The possibility that a spouse or partner may contribute to scholarly productivity has been suggested, but not pursued in any depth in the empirical research literature. A number of authors explain the finding that married women's productivity tends to be higher than single women's productivity by pointing to the role of a spouse in providing reinforcement and feedback (Astin & Davis, 1985; Kirsch, 1993); access to male mentors (Long, 1990); resources (Kyvik, 1990); and the opportunity to be engaged in male dominated networks (Astin & Davis, 1985).

The single reason put forward most frequently to explain the finding that both married men and married women produce significantly more publications than their single counterparts is in the distribution of household or childcare responsibilities. This is an important aspect of the material conditions associated with scholarly productivity because of its impact on the quality and quantity of time available to devote to scholarly activities. For example, Bellas (1997) pointed to management of domestic responsibilities to explain her finding that the years a partner was not employed was positively associated with a composite measure of publishing productivity. She observed: "One possible explanation for this relationship is that an unemployed partner facilitates productivity indirectly, for example, by assuming the bulk of household responsibilities, or directly, by providing research assistance" (p. 164).

Household and family responsibilities are also offered to explain the variation by gender in the impact of an academic spouse on publication productivity. For example, in one of the earliest published journal articles on the topic, Ferber and Huber (1979) concluded that although the husband's level of education had no significant impact on women's level of publishing productivity, being married to a comparably educated woman significantly lowered men's publishing productivity. Comparably educated women, they reasoned, were more likely than those who are less educated to devote the majority of their time to their own careers, shifting some household responsibilities traditionally assumed by women to men. Similarly, Astin and Milem (1997) observed that whereas faculty women with an academic spouse were more productive than those with a nonacademic spouse, academic men with an academic spouse were less productive than those with a nonacademic spouse. They interpreted these findings by suggesting that men with a nonacademic spouse may benefit from reduced household responsibilities and clerical and research support and that women with an academic spouse may benefit from access to information and to collegial networks. These explanations all seem to suggest that reciprocal benefits to productivity among academics with similarly positioned partners are unlikely. The implication is that the productivity of highly successful publishers comes at the expense of the productivity of their partner.

A similar hypothesis to those that explain the contribution of a partner to productivity as relating to the distribution of domestic responsibilities is the explanation that a spouse or partner may contribute to scholarly productivity by providing invisible labor. Invisible labor includes activities such as typing, editing, conducting experiments, or collecting data. The traditionally female role of providing the emotional labor to create a home environment that is supportive of the lifestyle required to sustain high levels of creative or intellectual output is another form of invisible labor. The role of a spouse or partner, most typically a woman, in supplying invisible labor is illustrated in several books about the contribution of intimate partnerships to creative and scientific innovation (Abir-Am & Outram, 1987; Chadwick & Courtivron, 1993; Perry & Brownley, 1984; Rose, 1984).

A third hypothesis is that among those who are both comparably and highly educated, a partner may contribute to scholarly productivity directly by sharing in the labor of producing scholarship. Bellas (1997) reported, for example, that having a partner with a PhD in the same field was significantly and positively associated with publication productivity, even when other, relevant factors were statistically controlled. Coauthorship is probably one reason for this. Both reinforcement and resources are required for scholarly productivity. Fox (1983) distinguished between these two when she observed that reinforcement is *why* scientists continue to produce and that resources are *how* they are able to sustain productivity (p. 296). Resources are the material and personnel resources required to conduct research. These include access to equipment and specialized and unspecialized labor. Reinforcement occurs both through informal feedback from colleagues about ideas and through formal recognition, such as awards and citations. Differences in access to resources and in the processes of reinforcement have been offered as an explanation for why so few women are prolific scholarly writers (Long & Fox, 1995; Ward & Grant, 1996). Academic partners who share competencies in research may contribute to productivity by providing resources, such as the efficiencies that occur from sharing the labor and expertise, and reinforcement that occurs with frequent and ongoing access to substantive feedback about ideas.

Method

The topic of formal and informal collaboration among academic partners emerged from earlier work I completed about the broader topic of the correlates of publishing productivity and how these vary by gender (Creamer, 1995, 1996, 1998; Creamer & McGuire, 1998). A different sample and methodology were utilized for the research presented in this article.

Sample

Thirty-three academics (20 women, 13 men) who had coauthored at least one scholarly publication with a spouse or partner participated in the research project. This includes 12 pairs where both members were interviewed ($n = 24$) and an additional 9 where only one member of the pair was interviewed. Not all are heterosexual pairs. The sample consists of 21 collaborative pairs. This was used as the unit of analysis, because I categorized each couple or pair, rather than each participant, as meeting the criteria of one of three collaborative patterns. For the 21 pairs, 14 women and 7 men were labeled as the primary informant either because they were the first to be interviewed or because they were the only one of the pair interviewed. Generally, both members of a pair were not interviewed because one of the members was not available for interviewing. Occasionally, I made the decision not to interview the second member of a pair because the collaborative relationship described by the primary informant was so brief or circumscribed that I was convinced that there was little new information to gain by interviewing the second person.

Participants were identified in one of two ways. Fourteen of the 21 primary informants indicated that they would be willing to participate in a telephone interview when they responded to the national survey that I mentioned earlier in this article. The remaining participants were identified through a snowball sampling technique.

In addition to having coauthored at least one scholarly publication with a spouse or partner, the 21 primary informants meet two other criteria: first, each is a tenured faculty member at the rank of associate or full professor. Second, each meets the definition of being a prolific scholarly writer by virtue of having published 21 or more journal articles or 3 or more books over the course of his or her career. They are employed at 14 different colleges and universities in the United States. Descriptive information about the primary informants appears in Table 1.

Data Collection

Interviews. I conducted a semistructured, individual telephone interview with each participant. Participants were asked to (a) describe the nature and extent of their collaboration with a partner, (b) assess its contribution to his or her overall career productivity, (c) compare it to other types of collaborative relationships with colleagues, and (d) describe how a typical project was accomplished. Interviews were tape-recorded and a verbatim transcript completed.

Curriculum vitae. Each participant was asked to supply a copy of an

TABLE 1

Descriptive Information About Primary Informants ($N = 21$)

Characteristic	Women #(%) ($n = 14$)	Men #(%) ($n = 7$)
Year Earned Doctorate		
1969 & before	3 (21%)	3 (43%)
1970–1979	8 (57%)	3 (43%)
1980–1985	3 (21%)	1 (14%)
Academic Rank		
Associate	1 (7%)	1 (14%)
Full	13 (3%)	6 (86%)
Academic Discipline of Doctorate		
Biological & Physical Sciences	3 (21%)	
Education		2 (29%)
Humanities	2 (14%)	
Social Sciences	9 (64%)	5 (71%)
Partner With Same Disciplinary Affiliation		
Yes	12 (86%)	6 (86%)
Partner's Position		
Faculty	12 (86%)	6 (86%)

NOTE: Columns may not add up to 100% due to rounding.

up-to-date curriculum vitae showing her or his complete publication record. I used the curriculum vitae to collect the following data for each of the primary informants: disciplinary affiliation (defined by academic area of doctorate), year of completion of the doctoral degree, academic rank, total number of refereed publications, and year and number of refereed publications coauthored with a spouse or partner.

Data Analysis

Data analysis was accomplished through using an inductive, constant comparative approach. Transcripts were first coded by hand for emerging themes. Once the codes had been refined, the transcripts were then coded a second time and imported into the qualitative software called NUDIST. The software allowed for the coded units of the transcript to be sorted by coauthorship pattern.

Findings

Descriptive Information About the Participants

Although sharing the demographic characteristics of prolific scholarly writers, the collaborative couples participating in this research project differ in some remarkable ways from the majority of faculty. They are not representative of faculty at large, any more than any sample of prolific scholarly writers is representative of faculty at large.

Training. As shown in Table 1, primary informants completed doctorates in a variety of academic disciplines: including the biological sciences, natural sciences, education, humanities, physical sciences, and social sciences. About two-thirds of the primary informants earned doctorates in the social sciences, such as sociology and psychology. Eighteen of the 21 primary informants (86%) reported that their partner completed a doctoral degree in the same disciplinary field. Most participants met when one or both of them were in graduate school.

Publishing productivity. Table 2 is used to present information about the publishing level of primary informants, as well as about the proportion of total articles coauthored with a spouse or partner. For most participants, the number of publications coauthored with a spouse or partner is only a small proportion of their total number of publications.

Current position. As is characteristic of most prolific scholarly writers, all of the primary informants hold senior, tenured faculty appointments and all but one are on the faculty at a research university. An unusually high proportion of the primary informants reported that their partner was in the same occupation. Eighteen of the 21 primary informants (86%) reported during the interview that their spouse or partner also held a faculty position.

TABLE 2

Publishing Productivity of Primary Informants (*N* = 21)

Characteristic	Women # (%) (*n* = 14)	Men #(%) (*n* = 7)
Career Journal Article Productivity		
Less than 21	2 (14%)	1 (14%)
21–50	5 (36%)	3 (43%)
More than 50	7 (50%)	3 (43%)
Number of Articles or Chapters Coauthored with Partner		
None	3 (21%)	1 (14%)
1–4	5 (36%)	4 (57%)
5–10	1 (7%)	1 (14%)
11–20	1 (7%)	1 (14%)
21 or more	4 (29%)	
Number of Books Coauthored with Partner		
None	5 (36%)	5 (71%)
1 or more	9 (64%)	2 (14%)

Patterns of Coauthorship

Terms such as adjunct, complementary, and interchangeable have been used in the literature to characterize collaborative arrangements. These terms proved unworkable for this sample of senior scholars who had coauthored with a spouse or partner, because they failed to capture how the collaborative relationship changed over time and from project to project. When I described the patterns and asked each participant if any of them accurately captured how they accomplished their joint projects, most participants replied that they had used all of the patterns at one time or other and that the roles each assumed varied by project. This was particularly true for participants in what I have labeled as long-term collaborative relationship with a spouse or partner.

Using information supplied during a personal interview and through the publications listed on the participant's vita, I developed the labels short-term, intermittent, and long-term to describe the patterns of coauthorship among academic partners. These terms describe three key elements of the collaborations. The first is the duration of the collaboration or the number of years it spans. The second is the number of publications that were coauthored. The third is the amount of skill or topic overlap among the partners.

Table 3 is used to summarize the major elements of each of the three patterns. They are described in greater detail in the following section.

Short-Term

Eight of the 21 primary informants described a collaborative relationship with a partner that was short-term. Participants in this kind of collaborative relationship described working with a spouse or partner on a single project where their research interests briefly intersected. In most cases, these collaborations occurred relatively early in one or both of their careers. Participants in this kind of relationship played distinct

TABLE 3
Patterns of Coauthorship with a Spouse or Partner Among Academics ($N = 21$)

Name	Characteristic			
(n)	Duration (Yrs)	Frequency	Career Paths	Topic
Short-term ($n = 8$)	5	One-time	Not necessarily parallel	Temporary intersection
Intermittent ($n = 3$)	Gaps of 5 or more years	More than once	Usually parallel	Interests diverged
Long-term ($n = 10$)	10	Consistent over time	Parallel	Interests intersect repeatedly

roles in the project, generally supplying a highly specialized skill that was otherwise unavailable.

Short-term collaborations were frequently the product of opportunity afforded by cohabitation and the partners' personal relationship. This was the case, for example, among several pairs who spent a fairly extended period of time together in a geographically isolated location during a fellowship, leave of absence, or field work in another country. In such situations, one of the partners often took advantage of a specialized competency offered by the other partner, such as knowledge of the language or culture of the region. For example, one participant described collecting data for his dissertation while he and his spouse were on leave in Japan. His spouse knew the language and translated the interviews for him and eventually worked with him to produce a coauthored article about the project. In these cases, the formal collaboration seemed to be one way for the participants to overcome geographical and/or social isolation.

Participants who described this type of relationship were not likely to report that the collaboration had a significant impact on their productivity. As one participant described it, "our period of writing together was roughly short in the big scheme of things." Participants often described the contribution of such collaborative partnerships to productivity in very pragmatic ways and found little that distinguished it from a collaborative relationship with any other colleague.

One of the women participants who identified herself as a molecular biologist wrote her very first scholarly paper with her spouse when they were in graduate school together in the early 1970s. The author or coauthor of more than 50 articles in academic or professional journals, she said that collaboration was endemic to her academic discipline. She saw little to distinguish the experience she had coauthoring with her spouse than collaboration with any other colleague. She said:

> I have collaborated with many, many people. That is one of the things about being a molecular biologist. You have to collaborate with other people because you cannot do all of the different techniques. I work on the interaction of two organisms. To understand how organisms work, you have to have a broad knowledge. Sometimes even that is not enough, and you have to collaborate with people who have certain tools at their disposal or certain organisms at their disposal that you can work with.

Intermittent

Three of 21 primary informants described a collaborative relationship with a partner that was intermittent. They collaborated with a spouse or partner to produce scholarly publications on more than one project, but there were gaps of more than five years between those publications. Such participants generally had at least one topic area where they shared an ongoing, common interest but for a number of reasons chose not to pursue this area for a fairly long period of time.

Although the small number of couples describing this pattern of coauthorship limits what can be said, issues of recognition seem to have played a major role in the decision of at least one member of each of these pairs to stop collaborating. Rather than having an unpleasant experience collaborating together, partners whose collaborative relationship was grouped in this pattern pointed to the pressure to establish scholarly identities distinct from each other as one of the reasons that they suspended their collaboration. For example, one participant, now a full professor in education, observed that her collaboration with her partner came to a "screeching halt" after her third year review, when she was told that she had published too many articles with senior people. Another woman, now a full professor in sociology, observed that she chose to move away from the academic area where both she and her spouse shared an interest because she wanted "to be in a different domain." The drive to differentiate from a partner by establishing clearly distinct lines of scholarly inquiry was one described by many of the participants, especially the women.

Unlike the academic partners classified in the short-term pattern, several of those classified as having an intermittent pattern of coauthorship reported planning to resume their formal collaborative relationship with a spouse because they now felt their reputation as a scholar was secure enough to do so.

Long-Term

Ten of 21 primary informants described a collaborative relationship with a partner that was long-term. All of the pairs in this category maintained a relatively consistent level of scholarly publishing with a spouse or partner. As shown on the curriculum vitae of the primary informant, dates of coauthored publications spanned ten or more years. Participants in this category generally described sustaining a collaborative working relationship with a partner on a topic at the interstices of their two closely allied, but distinct, research areas.

Participants in this kind of relationship generally had very similar disciplinary training and career paths. They were often extremely detailed in their delineation's of the demarcation between their distinct research agendas and where they overlapped. I interpret this to reflect that establishing a distinct intellectual domain was a significant source of legitimacy or authority both within the pair and to external audiences. Authority derived from a competence or expertise that is critical to a collaborative project may blur power or status differentials.

A geologist who has been collaborating with his spouse, also a geologist, for thirty years, provided an apt metaphor for how a pair might work together at the intersections of their distinct areas of expertise. He described these intersections in the following words:

> We have worked together both in California and Maine and recently on an ocean drilling project off of Costa Rica. She is more involved in hard rocks, the igneous rocks. I work primarily with sedimentary and metamorphic rocks because of my training in New England. In one area we have been working in California, both these rocks are being studied. They are actually faulted up against each other. It is in this area that we both can work on our different types of problems.

The potential for collaboration to generate new knowledge was most clearly articulated by members of this group. Like members of the other types of partnerships, they pointed to the advantage afforded by the immediacy and frequency of access to substantive feedback about ideas. In addition, members of this group observed the contribution of multiple, iterative conversations occurring informally and over long periods of time to the quality of their work.

A full professor at a research university in the midwest who identified herself as a cognitive psychologist described more clearly than any other participant how she and her partner have developed some theoretical models together. After being trained in the same research laboratory, working under the tutelage of the same advisor, and both being tenured in the same, highly competitive academic department, she observed:

> We have actually over the years, developed a couple of basic theoretical models that have been pretty widely picked up. I think of that as creative work, or at least it comes out of the literature. We didn't make it up whole cloth. That kind of thing . . . you don't just sit down and say, okay, I am going to come up with a theory. It develops out of multiple conversations over periods of years and through the process of writing.

The finding of a relationship between long-term collaborative arrangements and theory building are particularly interesting given that collaboration in scholarly research is more common when theory testing than theory building (Austin & Baldwin, 1991). It is the unusual duration and intellectual familiarity found in some of these long-term collaborative relationships that explains how they might lead to a joint construction of theory. These two characteristics may be the what distinguishes them from other types of collaborative relationships.

When compared to participants whose collaborative relationship with a partner was identified as short-term or intermittent, members of this group were most likely to characterize their collaborative relationship with a partner as having some unique qualities that differed from other types of collaborative relationships. Mutual trust and the emotional commitment may help to sustain them. For example, the partner to the faculty member just quoted, also a full professor in psychology, observed the following:

> The other factor, I suppose, is, our emotional attachment means that maybe we care more about the collaboration being successful. We are willing to fight it through to the successful resolution whereas with another collaborator, if we couldn't agree, we would find a compromise or trade off; . . . we'll do this part my way and this part your way rather than insisting on thinking hard enough to find the way to make it mesh. I suspect that might be part of the reason why I think that the work she and I have done has been amongst our best work.

Conclusions

Conceptual Explanations

The impact on scholarly productivity of an academic partner varied by the pattern of coauthorship. Most participants did not perceive that having a partner who shares the same occupation had a direct impact on scholarly productivity. Participants describing what were labeled as short-term or intermittent relationships were unlikely to report that their overall career productivity had been substantially affected by a collaborative relationship with a partner. They were also unlikely to see much difference between this type of collaborative relationship and any other type of collaborative relationship with a colleague. Participants describing relationships categorized as long-term were most likely to view these relationships as impacting either the quality or quantity of their scholarship or both.

Of the three hypotheses proposed in the literature to explain the relationship between an academic partner and scholarly productivity, I found the strongest support for its role in providing feedback about ideas. The single, nearly uniform reply to the question of how an academic partner contributed to scholarly productivity was the advantage afforded by ease of access to informal feedback. Informal feedback is an element of reinforcement that is critical to explaining why scholars continue to produce (Fox, 1983). The feedback also often came in response to draft manuscripts. Responding to each other's draft manuscripts was a widespread practice among the participants. More than one participant said that even though they found it painful, one of the most important services they provided each other was to "tear each other's work apart." I interpret this to mean taking each other's work seriously enough to scrutinize it, including for flaws in logic. This is an example of invisible labor which, if acknowledged at all, is generally recognized in a footnote, rather than by coauthorship. The contribution to innovation and productivity is greatest among partners who share research interests and training and who have collaborated together for an extended period of time.

Contrary to the explanation most often put forward in the research literature, when I asked each participant in what ways, if any, his or her partner had contributed to their scholarly productivity, not a single participant pointed to the contribution of the partner to childcare or household management as being a significant element of their productivity. Perhaps reflecting that both members placed a very high priority on their careers, the majority of the couples participating in the study did not have children. Of those who did, few still had young children at home. This may help to explain the near absence of references to household responsibilities as a significant aspect of productivity. It may also reflect the relatively elite character of the sample and that they are more likely to employ others to assist with domestic tasks that are routinely handled by younger faculty with fewer resources.

Astin and Milem (1997) proposed that members of academic couples may have more egalitarian arrangements than those who have an intimate partner who is not an academic. As is the convention, they use the term to describe couples who share household responsibilities. However, in the case of many of the partners in this study, the term seems an apt way to describe the roles they assumed in completing their joint projects. I do not have adequate information to determine if the term also applies to the division of household labor.

Participants often described the roles they and their partner assumed in joint projects as interchangeable. They pointed to the efficiencies gained by a distinct division of labor. The roles each assumed varied from project to project and did not seem to be defined by gender. One person generally took the lead in writing the first draft of a publication, but who did that varied by project. Who took the lead role was determined by a number of factors, such as in whose intellectual domain it largely rested, who was invited to produce the publication, and/or who could most readily fit it into her or his schedule. This challenges the assumption that hierarchy is inherent in collaborative relationships or that one member is inevitably stronger than the other. Such a situation may only be possible when persistent status or power differences among the participants, such as between an eminent mentor and protégé, do not dictate a single collaborative configuration.

The most significant role in scholarly productivity of such collaborations may not, as has been supposed, be the indirect contribution of an egalitarian division of labor in the home. Instead, it may be the direct contribution to productivity through access to the many types of highly specialized, intellectual, emotional, and physical labor required to produce scholarship made possible by a partner with overlapping skills and interests. These are elements of the material conditions associated with productivity. Participants reported these benefits to be reciprocal rather than one-sided.

The participants in this research study bring to life the processes involved in producing new knowledge, particularly the contribution of collaboration. While there are many informal types of collaboration that are not generally acknowledged by coauthorship, joint or multiple authorship of a publication is a convention generally used to recognize a substantial, intellectual contribution to a publication. Conventions about coauthorship vary by academic field and social-political context. For example, in the physical and natural sciences, the name of the principal investigator is often listed among the names of authors, regardless of the role he or she might have played in its production. Because I studied a sample of academics whose contribution to a jointly produced piece was formally acknowledged through coauthorship, I did not encounter the traditional types of relationships that I expected to find from my reading of the literature and from the anecdotes shared with me by others. For example, none of the participants whom I interviewed acknowledged that they had or functioned as a silent partner who contributed to scholarly productivity by providing invisible labor or the emotional support that often makes it possible for one member of the household to dedicate themselves to their work to the exclusion of responsibilities in other arenas. Nor did I encounter members of couples who characterized their working relationship as fitting the junior-senior/protégé-mentor role for more than a brief period of time.

My explanation for the absence of these kinds of couples from my sample is not that these types of relationships are not common. By delimiting my sample to couples who have coauthored together, I tapped into a group of people who not only share in the work of scholarship but also publicly acknowledge the contribution by the authoring conventions they utilize. Because members of most of the pairs in the study were both in positions that rewarded scholarly publication, it seemed very unlikely to me that the coauthorship was a social courtesy or gesture of familial generosity. Regardless of whether others might interpret the contribution in the same way, the couples' use of coauthorship seems to reflect a public acknowledgment of comparable roles. In other situations, partners may play comparable roles but fail to acknowledge them through coauthorship because of disciplinary and social conventions, the type of position they hold, or their own recognized or unrecognized attitudes about marriage or partnerships.

Implications for Practice

The most direct implications for practice of these findings is the potential for innovation and knowledge production afforded by trust, proximity, and long-term access to informal feedback from similarly trained colleagues with overlapping research interests. Obviously, collaboration among academic partners is only one example of this kind of relationship. With changes in the nature of faculty work, including the advent of widespread use of electronic communications, face-to-face interaction among like-minded colleagues may be something that is growing less frequent. This may be particularly true in fields where research is not generally conducted by research teams. Collaboration among partners may be one outcome of a situation where a faculty member has little access to colleagues or graduate students who share a similar, highly specialized, research interest. Academic administrators are challenged to create opportunities for faculty to overcome intellectual isolation by interacting with other faculty, informally, but regularly, about their research interests. Findings from the academic couples in this study suggest that shared, common space is one important element of a productive, informal, ongoing exchange.

Many participants spoke at length of the traditional, institutional reward structures at research universities as being a deterrent to collaboration with a spouse or partner. Both men and women reported receiving unmistakable messages about the importance of developing an independent scholarly record. Several participants shared with me the experience of being challenged during the process of a merit review to identify what role each had assumed in the articles they had coauthored with a spouse. Because it complicates evaluation, most long-term collaborative relationships, especially with a mentor or someone perceived to be senior in rank, are discouraged in the traditional academic reward structure. Participants cautioned that embarking on such a collaboration is risky before an independent reputation as a scholar is firmly established.

Findings from this research point to a number of related areas for further research. One is to explore if the apparent egalitarianism in the work relationship found among the academic partners in this study extends to comparable egalitarianism in household responsibilities. A second is to investigate how the impact on productivity of collaborative relationships among academic partners varies by doctoral cohort group. It has been proposed to me, for example, that the type of collaborative relationship among relatively equally positioned academic partners described in this research article is the product of a propitious, historical moment that identifies a group of people who completed much of their advanced education during the peak of the women's movement and entered faculty positions in the early 1980s—a time when resources were far more abundant than they have been in subsequent years. The counterhypothesis is that with the growth in the number of women in tenure track faculty positions in many academic units and the dramatic increase, since the 1970s, in the proportion of faculty women who are married, such collaborative relationships are even more likely among recent doctoral cohorts than they were in the past. These are issues worth pursuing.

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Donald L. Basch

Changes in the Endowment Spending of Private Colleges in the Early 1990s

Introduction

In recent years, as many colleges have struggled to contain rising expenditures and to raise revenues to meet those expenditures, a bright aspect of their financial condition has been sharp increases in the market value of their endowments. The annual *NACUBO Endowment Study* (1997) reports that endowment market value, corrected for inflation, more than tripled from 1981 to 1996. Yet, suspicions have arisen that the rising values of these endowments have not been adequately reflected in operating revenues, thereby forcing colleges to rely on such other sources of increasing revenue as students' tuition and fees. In the bluntly titled "Why Colleges Cost Too Much," Erik Larson uses the University of Pennsylvania as an example of his concern:

> Penn's endowment rose 25.9% last year, to more than $2.1 billion, much of the increase coming from market appreciation. The university's spending rule calls for it to spend 5%—but not of that full amount. Rather, Penn limits itself to spending 5% of an average of the total endowments reported for the latest 3 years. For this school, that moving average is $1.5 billion. But Penn gets even stingier. This year it projects that it will spend 3.7% of this average, or $58.3 million, on university programs. Which works out to 2.8% of the current total of $2.1 billion. (Larson, 1997, p. 52)

The controversy over the extent of colleges' use of endowment to support current operations is not a new one. A watershed was the 1969 publication by the Ford Foundation Advisory Committee on Endowment Management (1969) which identified "the adverse consequences of the

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failure to establish the clear-cut objective of maximum long-term total return" (p. 5). The committee recognized that part of the reason for the failure was that most colleges, in drawing upon endowment for current operations, had thought themselves legally restricted to interest and dividends received, so that the need for income to support current operations required investment in high-yielding equities and in bonds. To this the committee noted that Cary and Bright's *The Law and Lore of Endowment Funds,* also published in 1969 by the Ford Foundation, concluded "that there is no legal problem in drawing upon capital gains realized on endowment funds that do not have any donor restrictions" and that the situation was "far from hopeless" even when donor restrictions existed (Ford Foundation Advisory Committee on Endowment Management, 1969, p. 22).[1]

In making a strong financial case for colleges to invest to maximize long-term total return, the Ford Foundation Advisory Committee implied that colleges should place increased emphasis on investment in equities.[2] Even prior to the Committee's report, many colleges had been moving in such a direction (Williamson, 1975, p. 97). While historically having a higher total return relative to bonds, equities also tend to have more year-to-year volatility in market value; to produce lower annual income yield (i.e., equities' dividends as a percentage of market value are typically below bonds' interest as a percentage of market value); and to generate much of their return through the appreciation of market value. Thus, one consequence of the increasing emphasis on equities has been a robust literature focused on appropriate endowment spending formulas and guidelines.

As argued by Winston (1993), there is much to be said for a more "global" approach in viewing the role of a college's endowment spending as only part of an overall strategy of sustaining the real value of its resources; merely focusing on the real value of the endowment and a college's operating budget can provide a seriously misleading picture. Nevertheless, endowment spending policies aimed at supporting current operations while maintaining the real value of endowment continue to attract considerable attention. The literature includes important historical perspectives, conceptual discussions, and practical advice (Adams, 1977; Brown, 1988; Coiner, 1990, 1992; Dunn, 1991; Jennings, 1992; Litvack et al., 1974; Massy, 1996; Merton, 1993; Morrell, 1991, 1994, 1995; Nichols, 1974; Tharp, 1997; Tobin, 1974; Twentieth Century Fund Task Force on College and University Endowment Policy, 1975; Williamson, 1974, 1975, 1977). An especially comprehensive perspective is provided by Massy (1990). Further, on an annual basis since 1971, the National Association of College and University Business Officers

(NACUBO) has conducted a survey of colleges' endowment policies and performance and has published a review of the results (NACUBO, 1997 and earlier).

The present study, focusing on private colleges, offers a perspective on the recent use of endowments to support current operations. The next section documents the increases in the market value and income yield of these colleges' endowments over the period from 1989 to 1995. Although such documentation is provided (for a smaller number of private colleges) in the annual *NACUBO Endowment Study,* the present study also compares these market value increases to increases in the support provided by endowment for current operations. Specifically, increases in endowment market value are compared to increases in the endowment income included in colleges' current funds revenues and increases in endowment funds transferred to current funds. A perspective is offered concerning how the extent of the use of endowment to support current operations varies across colleges according to their endowment size and their endowment spending formula. Then, drawing on an approach developed by Coiner (1990, 1992), a comparison is made between recent *actual* endowment spending rates and *optimal* spending rates. This comparison updates Coiner's earlier analysis in two major ways: actual spending rates have decreased over the past several years; and, incorporating recent stock and bond market performance, optimal spending rates have increased.

Recent Changes in Endowment Market Value and Endowment Use for Current Expenditures

In this section, data are organized to show the change in endowment market value, endowment yield, and the use of endowment yield and appreciation to support current expenditures at private colleges over the period from 1989 (i.e., the 1988–89 academic year) to 1995 (i.e., the 1994–95 academic year).

The primary source for the data is the Finance Survey of the National Center for Education Statistics' Integrated Postsecondary Education Data System (IPEDS). From the 1377 private colleges and universities included in the 1995 IPEDS, only those 860 classified by the Carnegie Foundation as research universities, doctoral universities, master's colleges and universities, or baccalaureate colleges are included. Associate of arts colleges and specialized institutions are excluded. After further eliminating those 130 institutions that either had reported no endowment for 1989 and 1995 or had missing data on their endowment market value, 48 that had missing data on other financial variables included in this study, and 13 that reported inconsistent information that was presumed to be in error, 669 private colleges and universities (hereinafter referred to simply as colleges) remained in the sample.

Table 1 organizes the data for the 669 private colleges. The following items are included:

Beginning-of-the-year market value of endowment is the market value of the college's endowment just prior to the fiscal year's starting date. In the current study, for most colleges these dates are June 30, 1988 (for the 1988–89 academic year) and June 30, 1994 (for the 1994–95 academic year).

Endowment yield is the amount of interest, dividends, rent, royalties, and other current income earned by the endowment. Whereas yield includes these forms of income earned by the endowment, changes in market value (appreciation or depreciation) are not included as "yield."

Endowment income included in current funds revenues and *endowment payout to current funds* constitute two ways—each imperfect—of characterizing the support provided by endowment for current operations. Colleges (and their trustees) exercise considerable discretion in determining how much of endowment to incorporate in current funds and current funds revenues in a particular year: some colleges include only the endowment yield or a portion of that yield; but many colleges have adopted a "total return" approach. Though there are several variants of the total return approach, it often calculates endowment available

TABLE 1

Changes from 1989 to 1995 in Endowment Market Value, Endowment Yield, Current Funds Expenditures and Mandatory Transfers, and Endowment Support of Current Operations

	Amounts				Percentage Changes from 1989 to 1995	
	Medians		Aggregate			
	(Millions of Dollars)					
	1989	1995	1989	1995	Median	Aggregate
Beginning-of-year market value of endowment	9.422	16.164	37,784	62,250	70.7%	64.8%
Endowment yield	0.638	0.730	2,112	2,400	16.8	13.6
Endowment income included in current funds revenues	0.591	0.717	1,946	2,614	26.7	34.3
Endowment payout to current funds	0.628	0.841	2,209	3,223	29.4	45.9
Current funds expenditures and mandatory transfers	16.825	25.829	33,272	50,045	53.7	50.4
Current funds expenditures and mandatory transfers less institutional scholarships and fellowships	15.184	21.390	31,168	45,419	45.6	45.7

for current use as a percentage of endowment market value or of a moving average of endowment market value. In principle, a total return approach separates available endowment income from yield, permitting the income available to reflect the overall return (market appreciation or depreciation as well as yield) on endowment. Thus, an "endowment yield only" approach may—and, under recent conditions, would for most colleges—lead to a substantially different amount being available to support current operations.

Unfortunately, there is some ambiguity about the way colleges report endowment income available for current operations in the IPEDS data. One characterization, shown in Table 1, is to refer to *endowment income included in current funds revenues.* The *endowment income* line item within current funds revenues would seem to be on the mark: institutions not using a "spending formula" are asked, essentially, to report the unrestricted income of endowment and the portion of restricted endowment income spent on current operations, and institutions using a spending formula are asked to report the amount, including appreciation (or depreciation) on endowment, calculated by the total return method. Clear enough. However, the background accounting guidelines—to which IPEDS also makes reference—dictate that endowment appreciation used for current operations is to be reported as a transfer from endowment funds to current funds, not as current funds revenues.[3] One has to wonder whether a particular college, using a "total return" approach, followed IPEDS' specific instructions (to report the amount calculated by the college's spending formula) or followed the accounting guidelines to which IPEDS also refers.

Another plausible way to characterize endowment support for current operations from the IPEDS data is by summing the amount of endowment yield included within current funds revenues and adding to that the amount of endowment funds' capital gains transferred to current funds. This information is included in Table 1 as *endowment payout to current funds.* Current funds "include those economic resources of the institution which are expendable for any purpose in performing the primary objectives of the institution . . . and which have not been designated by the governing board for other purposes" (American Institute of Certified Public Accountants, 1975, p. 13). Thus, endowment payout to current funds constitutes the amount of resources being taken from endowment and placed in an asset category which is then available for current operating purposes. Again, some nuances of interpretation must be cited: transferring endowment funds to current funds does not assure their use within the year of transfer (and could, for that matter, be transferred back to endowment without ever being used for operating purposes), and according to the IPEDS instructions, the only transfers from endowment to current funds that are to be reported are those arising from capital gains. Despite such considerations, *endowment payout to current funds* appears to capture better what is meant here by endowment support for current operations than *endowment income included in current funds revenues.*

Table 1 seeks to show not only the extent of changes in endowment market value, yield, and support for current operations, it also seeks to show how such changes compare to the changing (typically, increasing) expenditures made by colleges for current operations. *Current funds expenditures and mandatory transfers* are cited in the IPEDS survey as the "costs incurred for goods and services used in the conduct of the institution's operations." Included within *current funds expenditures and mandatory transfers* are *institutional scholarship and fellowship expenditures.* Because such institutional scholarship and fellowship "spending" might best be viewed as a discount from tuition revenue—such "spending" never actually occurs for resources purchased by the college—information on changes in *current funds expenditures and mandatory transfers excluding institutional scholarships and fellowships* (hereinafter referred to as *net current funds expenditures*) is also provided in Table 1.

Both median and aggregate levels and percentage changes are shown. The median is the value that divides the 669 colleges into two equal parts, 334 being below the median and 334 being above the median.[4] The aggregate figures are constructed as follows: the dollar value of the particular category is summed across all 669 colleges, both for 1989 and 1995, and these sums are reported as the aggregate amounts for the 2 years; then the percentage change from 1989 to 1995 is calculated on the basis of these sums. An important difference can arise in the perspective provided by median and aggregate figures, particularly because colleges with smaller endowments tended to behave differently from those with larger endowments from 1989 to 1995. Ranked by endowment size (as of June 30, 1994), the least endowed 80% of colleges had 14% of the aggregate market value of endowment; these colleges dominate the median results. With the most highly endowed 20% of colleges having 86% of aggregate endowment market value, these more highly endowed colleges dominate the aggregate results. More about this later.

As shown in Table 1, the median percentage increase in beginning-of-the-year endowment market value was 70.7% and the aggregate percentage increase was 64.8%. The primary holdings in most college endowments are equities and bonds, both of which generated strong returns over the period: the S&P 500 index increased 97.1%, and the Lehman

Brothers Aggregate Bond Index increased 68.6%.[5] Endowment market value is affected not only by the performance of colleges' equities, bonds, and other investments. As suggested above: colleges spend some or all of the endowment yield on current operations, many colleges use some portion of market value appreciation for current operations, and other transfers into and out of endowment occur on a discretionary basis. Thus, investment performance does not fully determine change in endowment market value, but it is a central influence, and the strong gains in endowment value from 1989 to 1995 reflect stock and bond market performance.

Although the market value of private colleges' endowments increased by a median 70.7% and by 64.8% in the aggregate, the yield (interest, dividends, rents, royalties, and other income) from endowment grew at much more moderate rates: a median 16.8% and an aggregate 13.6%. Three elements are likely to have accounted for the slower growth in yield than in market value: dividends on equities grew more slowly than the market value of equities, interest rates on bonds fell (thereby contributing to appreciation in the market value of bonds but resulting in lower interest yields), and an increasing share of colleges' investment portfolios was held in equities and a lower share in bonds, thereby contributing to lower overall yields, because dividend rates on equities tend to be lower than bond interest rates.

Given the sharp increase in endowment market values and the more moderate increase in yields, what changes occurred in the use of endowment income as part of current funds revenues? The median percentage increase in endowment income included in current funds was 26.7%, and the aggregate percentage increase was 34.3%. Thus, reflecting the use by many colleges of a total return approach, endowment income directly reported as supporting current operations increased more sharply than endowment yields. Yet, the increase in endowment income included fell substantially short of the increase in endowment market values. Recall, however, that among colleges using a total return approach, accounting conventions may have inhibited many from reporting within current funds *revenues* the full amount of endowment used to support current operations.

Looking at endowment payout to current funds, which includes both endowment yield used in current funds and transfers from endowment to current funds, the median percentage increase is 29.4% and the aggregate percentage increase is 45.9%. Both are short of the respective increases in endowment market values (median 70.7% and aggregate 64.8%), though the shortfall for the aggregates is smaller than that for the medians.

Somewhat mixed results emerge in characterizing whether the use of endowment for current operations kept up with increases in overall expenditures on current operations. Excluding the rapidly increasing institutional support for scholarships and fellowships (which, as noted above, are perhaps best excluded from expenditures because they are tuition discounts and do not constitute actual "spending" on resources purchased by the college), the median and aggregate percentage increases in net current funds expenditures were virtually equal at 45.6% and 45.7%, respectively. Endowment income included in current funds revenues increased by a median 26.7% and by an aggregate 34.3%, well below the increase in net current funds expenditures. However, though the median increase in endowment payout to current funds was 29.4%, the aggregate percentage increase in endowment payout of 45.9% was in line with the 45.7% increase in net current funds expenditures.

Another perspective on some of the points concerning endowment yield and endowment support of current operations is provided in Table 2:

The drop in endowment yield is again evident: median endowment yield as a percentage of endowment market value fell from 6.57% to 4.38% from 1989 to 1995; and using aggregate figures, the drop was from 5.59% to 3.85%.

TABLE 2

Changes from 1989 to 1995 in Endowment Yield and Endowment Support for Current Operations Relative to Endowment Market Value and Net Current Funds Expenditures

	1989		1995	
	Median	Aggregate	Median	Aggregate
Endowment yield as a percentage of beginning-of-year market value of endowment	6.57%	5.59%	4.38%	3.85%
Endowment income included in current funds revenues as a percentage of beginning-of-year market value of endowment	5.98	5.15	4.37	4.20
Endowment payout to current funds as a percentage of beginning-of-year market value of endowment	6.59	5.85	5.06	5.18
Endowment income included in current funds revenues as a percentage of current funds expenditures and mandatory transfers	3.15	5.85	2.57	5.22
Endowment income included in current funds revenues as a percentage of current funds expenditures and mandatory transfers less institutional scholarships and fellowships	3.55	6.24	2.91	5.76
Endowment payout to current funds as a percentage of current funds expenditures and mandatory transfers	3.55	6.64	3.03	6.44
Endowment payout to current funds as a percentage of current funds expenditures and mandatory transfers less institutional scholarships and fellowships	3.91	7.09	3.48	7.10

Also shown is a drop in both endowment income included in current funds revenues and in endowment payout to current funds as a percentage of beginning endowment market value. These rates will be referred to here, respectively, as the "endowment income rate" and the "endowment payout rate." The median endowment income rate fell from 5.98% to 4.37%, and the aggregate figure dropped from 5.15% to 4.20%. Note that the drop in endowment income rate, though substantial, is not as severe as the drop in endowment yield as a percentage of endowment market value. The median endowment payout rate fell from 6.59% to 5.06%, and the aggregate figure fell from 5.85% to 5.18%, again not as severe as the drop in endowment yield as a percentage of endowment market value. Further, the aggregate percentage decline in the endowment payout rate is also substantially smaller than for the endowment income rate.

Colleges' reliance on endowment income to support current operations is shown in the last four rows of Table 2. There are declines in what will be termed here as the "endowment income support rate" from 1989 to 1995: the median percentage change in endowment income included relative to net current funds expenditures and mandatory transfers fell from 3.55% to 2.91%, and the corresponding aggregate figure fell from 6.24% to 5.76%.[6] However, a mixed picture emerges when looking at what will be termed "the endowment payout support rate": the median percentage change in endowment payout to current funds relative to net current funds expenditures and mandatory transfers fell from 3.91% to 3.48%, but there was virtually no change in the corresponding aggregate figure as it moved from 7.09% to 7.10%.[7]

What might we make of all this? Recall that the overall bright spot is the sharp growth in endowment market value at the nation's private colleges; the overall concern is that these colleges are not adequately reflecting endowment growth in funds available for current operations. If the latter is correct, then colleges may be unduly relying on other sources of revenue, such as students' tuition and fees, to support current operations. Further, colleges may be unduly restraining expenditure items that would otherwise benefit students and/or employees.

The data confirm a sharp increase in private colleges' endowment market value from 1989 to 1995, accompanied by a substantial drop in endowment yield relative to endowment value. Further, relative to the increase in endowment market value, there is a shortfall in the increase in the endowment income included within current funds revenues or transferred to current funds: endowment income included in current funds revenues falls as a percentage of endowment market value, and endowment paid out to current funds falls as a percentage of endowment market value.

Yet, a mixed picture emerges concerning the increase in endowment support relative to the increase in net current operating expenditures. Both median and aggregate figures provide evidence of a significant shortfall in the growth of endowment income included within current funds revenues relative to the growth of operating expenditures. To some inestimable extent, this shortfall may merely reflect accounting conventions that inhibited many colleges from including within current funds revenues the full amount of endowment used to support current operations. Turning to a broader notion of endowment payout to current funds, a mixed picture emerges: whereas median figures show a drop in such support, the aggregate percentage increase in endowment paid out to current funds virtually equals the corresponding increase in net current funds expenditures. Looking at it another way, 57.1% of the 669 colleges had percentage increases in endowment payout that lagged their percentage increases in net current operating expenditures—and this is reflected in the median figures, but the behavior of more highly endowed institutions tends to dominate the aggregate results, which show endowment payout increasing by virtually the same percentage as net current funds expenditures.

Even ignoring the aggregate results for endowment payout and focusing on those median indicators showing a relative decline in endowment support for current operations, one could reasonably argue that the fault lies in the exceptionally high growth of those operating expenditures. Despite an increase in the Higher Education Price Index (HEPI) of only 26.3% from 1989 to 1995, the median growth in net current funds expenditures and mandatory transfers at the 669 colleges was 45.6%, and the aggregate growth was 45.7%.[8] The median increase of 26.7% and the aggregate increase of 34.3% in endowment income included in current funds revenues actually exceeded the 26.3% increase in the HEPI, as did the median increase of 29.4% in endowment payout to current funds (and as did the 45.9% aggregate increase in endowment payout to current funds).[9]

Some caveats are also in order. There is considerable variation among colleges: as already noted, the differences between median and aggregate results strongly suggest that colleges with smaller endowments (tending to dominate the median results) have been behaving differently than those colleges with larger endowments (tending to dominate the aggregate results). Further, nothing has yet been cited here concerning appropriate use of endowment to support current operations. Acknowledge the decline in endowment income included in current funds revenues and in endowment payout to current funds as a percentage of endowment market value. Might not the reliance on endowment have been unduly high as of 1989 so that the changes from 1989 to 1995 represent a movement to more appropriate levels?

The issue of differences among colleges is addressed in the next section. In the ensuing section, the issue of appropriate endowment spending rates is addressed.

Differences Among Colleges: The Roles of Endowment Size and Endowment Spending Rule

Out of the many possible reasons for differences among colleges in their extent of reliance on endowment over the 1989 to 1995 period, the current section focuses on differences in endowment size and differences in endowment spending rule. The annual *NACUBO Endowment Study* suggests that colleges of different endowment size tend to differ in their endowment portfolio allocation among types of investment, endowment yield, and endowment spending rate. Further, as just noted, the differences between median and aggregate results for the 669 private colleges in the present study suggest differences in behavior according to endowment size. There is reason, then, to investigate whether differences in endowment size are also related to different extents of change in endowment support of current operations from 1989 to 1995. The *NACUBO Endowment Study* also provides information on the endowment spending rule used by colleges. A natural question is whether differences in rule are systematically linked to different degrees of change in endowment support.

Dividing the colleges into four categories based on endowment market size, much of Table 3 reinforces the picture provided by the data on private colleges on the whole. For each category of college: endowment market value grew sharply from 1989 to 1995; endowment yield grew, but at a much slower rate than endowment market value; endowment income included in current funds revenues grew more quickly than endowment yield (with the exceptions of the aggregate changes for colleges in the second smallest category and the median changes for colleges in the smallest category) but at a slower rate than endowment market value; and endowment income included in current funds revenues also lagged the growth in current funds expenditures and mandatory transfers, whether one focuses on such expenditures and transfers before or after netting out institutional scholarships and fellowships (with the slight exception of the median changes for colleges in the second largest category).

If, however, one turns to endowment payout to current funds (which, recall, includes both the endowment yield included in current funds rev-

TABLE 3A

Percentage Changes from 1989 to 1995 in Endowment Market Value, Endowment Yield, Endowment Income Included in Current Funds Revenues, Endowment Payout to Current Funds, and Current Funds Expenditures and Mandatory Transfers (Colleges Grouped by Size of Endowment Market Value as of June 30, 1994)

	Endowment Market Value as of June 30, 1994 (in Millions of Dollars)									
	< 10		> = 10, < 25		> = 25, < 100		> = 100, < 400		> = 400	
	Median	Agg.	Median	Agg.	Median	Agg.	Median	Agg.	Median	Agg.
	(All figures are percentage changes from 1989 to 1995)									
Beginning-of-year market value of endowment	66.5%	59.8%	77.6%	78.0%	72.0%	69.6%	68.9%	70.3%	60.6%	61.1%
Endowment yield	20.3	13.2	19.2	28.3	16.5	15.5	3.7	10.9	3.8	13.1
Endowment income included in current funds revenues	19.7	21.4	23.3	23.0	36.2	34.8	38.8	29.8	28.7	37.6
Endowment payout to current funds	10.6	10.1	22.8	32.2	41.9	38.8	51.7	47.8	44.4	50.1
Current funds expenditures and mandatory transfers	59.3	60.1	56.1	60.5	50.2	48.8	44.2	47.5	52.0	48.6
Current funds expenditures and mandatory transfers less institutional scholarships and fellowships	52.9	52.6	46.9	51.5	39.9	40.5	38.6	41.8	48.9	47.1
Number of colleges	262		146		158		71		32	

TABLE 3B

Changes in Endowment Yield, Endowment Included in Current Funds Revenues, and Endowment Payout to Current Funds Relative to Endowment Market Value and Net Current Funds Expenditures and Mandatory Transfers Colleges (Grouped by Size of Endowment Market Value as of June 30, 1994)

	< 10		> = 10, < 25		> = 25, < 100		> = 100, < 400		> = 400	
	1989	1995	1989	1995	1989	1995	1989	1995	1989	1995
Median Percentages										
Endowment yield as a % of beginning-of-year endowment market value	7.35%	5.18%	7.01%	4.39%	6.16%	4.04%	5.64%	3.60%	5.66%	3.69%
Endowment income included in current funds revenues as a % of beg.-of-yr. end. mkt. value	6.52	4.83	6.22	4.24	5.86	4.23	5.00	3.89	5.27	3.95
Endowment payout to current funds as a % of beg.-of-yr. end. mkt value	7.10	5.05	7.17	5.19	6.23	5.13	5.88	5.20	5.77	4.92
Endowment income included in current funds rev. as a % of net current funds exp. & mnd. transfers	1.76	1.43	3.90	3.29	5.80	5.73	11.50	10.15	8.01	7.12
Endowment payout to current funds as a % of net current funds exp. & mnd. transfers	1.94	1.47	4.55	4.00	7.03	7.27	13.27	13.66	10.14	9.06

	< 10		> = 10, < 25		> = 25, < 100		> = 100, < 400		> = 400	
	1989	1995	1989	1995	1989	1995	1989	1995	1989	1995
Aggregate Percentages										
Endowment yield as a % of beginning-of-year endowment market value	7.48%	5.30%	6.93%	5.00%	6.20%	4.22%	5.69%	3.70%	5.29%	3.71%
Endowment income included in current funds revenues as a % of beg.-of-yr. end. mkt. value	6.93	5.27	6.57	4.54	5.76	4.57	5.29	4.03	4.83	4.13
Endowment payout to current funds as a % of beg.-of-yr. end. mkt value	8.00	5.51	8.07	6.00	6.94	5.68	6.09	5.29	5.33	4.97
Endowment income included in current funds rev. as a % of net current funds exp. & mnd. transfers	1.99	1.58	3.68	2.99	4.78	4.58	7.04	6.44	7.70	7.20
Endowment payout to current funds as a % of net current funds exp. & mnd. transfers	2.29	1.65	4.52	3.95	5.76	5.69	8.10	8.45	8.49	8.66

enues and the endowment funds' capital gains transferred to current funds), a much different picture emerges relative to growth in net current funds expenditures, at least at the colleges with larger endowments. For those in the \$25–\$100 million endowment range, percentage increases in endowment payout are about in line with percentage increases in net current funds expenditures; for those between \$100 million and \$400 million, percentage increases in endowment payout are above those for net current funds expenditures; and for those above \$400 million, the median percentage increase in endowment payout is mildly below and the aggregate percentage increase is mildly above those for net current funds expenditures. On the other hand, the percentage increases in endowment payout to current funds are sharply below the percentage increases in net current funds expenditures for colleges with endowment sizes below \$25 million. Relative to colleges with larger endowments, these are generally colleges that rely less on endowment support for current operations, so that a shortfall in endowment income included in current funds revenues, or in endowment payout, is apt to have a smaller impact on budgeting for current operations. Further, these are colleges whose endowment payout rates (relative to endowment market value) were substantially higher than at the larger colleges in 1989; and they may well have sought to reduce their payout rates in order to facilitate growth in their endowments.[10]

Colleges can also be categorized on the basis of the specific endowment spending "rules" that they have adopted. For 1995, the annual *NACUBO Endowment Study* (NACUBO, 1996, pp. 54–59) identified eight such categories: spend all current income; spend a prespecified percentage of current income; spend a prespecified percentage of beginning market values; spend a prespecified percentage of a moving average of market values; increase prior year's spending by a prespecified percentage; decide on an appropriate rate each year; other rule; and no established policy. Table 4 boils these eight categories down to three, as follows: the first two categories are combined into a Group 1, whose rule is to spend all or a prespecified percentage of current income; the third and fourth categories are combined into a Group 2, whose rule is to spend a prespecified percentage of market values (with most Group 2 colleges applying the percentage to a moving average of past years' market values); and the last four categories are combined into a Group 3, not bound by a prespecified percentage of current income or market values.[11] Of the 669 colleges in the current study, the NACUBO survey includes spending rule information on 262, the tendency being for the NACUBO survey to have higher representation of the higher endowment colleges. Of these 262, 20 are in Group 1, 179 are in Group 2, and 63 are in Group 3.

TABLE 4A

Percentage Changes from 1989 to 1995 in Endowment Market Value, Endowment Yield, Endowment Income Included in Current Funds Revenues, Endowment Payout to Current Funds, and Current Funds Expenditures and Mandatory Transfers (Colleges Grouped by Endowment Spending Rule as of 1995)

	Group 1		Group 2		Group 3		All 262 Colleges in Groups 1, 2, and 3		All 669 Colleges	
	Median	Agg.	Median	Agg.	Median	Agg.	Median	Agg.	Median	Agg.
	(All figures are percentage changes from 1989 to 1995)									
Beginning-of-year market value of endowment	65.0%	53.5%	68.2%	68.9%	67.9%	60.4%	67.7%	64.0%	70.7%	64.8%
Endowment yield	9.2	10.0	7.7	11.3	16.9	14.6	9.6	12.7	16.8	13.6
Endowment income included in current funds revenues	27.8	29.5	26.8	21.9	43.9	51.5	30.1	35.4	26.7	34.3
Endowment payout to current funds	27.3	37.4	49.8	42.5	44.1	56.7	46.1	48.2	29.4	45.9
Current funds expenditures and mandatory transfers	50.7	64.7	49.1	49.8	51.0	44.7	49.2	48.6	53.7	50.4
Current funds expenditures and mandatory transfers less institutional scholarships and fellowships	40.9	59.9	39.9	45.2	43.3	41.7	40.1	44.6	45.6	45.7
Number of colleges	20		179		63		262		669	

TABLE 4B

Changes in Endowment Yield, Endowment Included in Current Funds Revenues, and Endowment Payout to Current Funds Relative to Endowment Market Value and Net Current Funds Expenditures and Mandatory Transfers (Colleges Grouped by Endowment Spending Rule as of 1995)

	Median Percentages									
	Group 1		Group 2		Group 3		262 Colleges in Groups 1, 2, and 3		All 669 Colleges	
	1989	1995	1989	1995	1989	1995	1989	1995	1989	1995
Endowment yield as a % of beginning-of-year endowment market value	6.63%	4.12%	6.04%	3.89%	5.93%	3.84%	6.04%	3.92%	6.57%	4.38%
Endowment income included in current funds revenues as a % of beg.-of-yr. end. mkt. value	5.69	4.04	5.60	4.18	5.50	4.31	5.54	4.20	5.98	4.37
Endowment payout to current funds as a % of beg.-of-yr. end. mkt value	6.82	4.40	6.25	5.42	5.92	4.89	6.22	5.21	6.59	5.06
Endowment income included in current funds rev. as a % of net current funds exp. & mnd. transfers	5.50	5.06	6.76	6.48	7.81	8.12	6.87	6.51	3.55	2.91
Endowment payout to current funds as a % of net current funds exp. & mnd. transfers	7.44	7.49	8.01	8.14	8.00	7.68	7.95	7.97	3.91	3.48

	Aggregate Percentages									
	Group 1		Group 2		Group 3		262 Colleges in Groups 1, 2, and 3		All 669 Colleges	
	1989	1995	1989	1995	1989	1995	1989	1995	1989	1995
Endowment yield as a % of beginning-of-year endowment market value	4.80%	3.44%	5.85%	3.86%	5.21%	3.72%	5.49%	3.77%	5.59%	3.85%
Endowment income included in current funds revenues as a % of beg.-of-yr. end. mkt. value	4.38	3.69	5.72	4.13	4.52	4.27	5.07	4.17	5.15	4.20
Endowment payout to current funds as a % of beg.-of-yr. end. mkt value	5.01	4.49	6.60	5.57	4.91	4.79	5.70	5.15	5.85	5.18
Endowment income included in current funds rev. as a % of net current funds exp. & mnd. transfers	7.86	6.36	6.07	5.10	9.06	9.68	7.16	6.69	6.24	5.76
Endowment payout to current funds as a % of net current funds exp. & mnd. transfers	9.00	7.74	7.01	6.88	9.84	10.88	8.05	8.26	7.09	7.10

With the 262 colleges (with median endowments as of June 30, 1994 of $61.7 million) tending to have higher endowments than the entire group of 669 colleges (with median endowments of $16.2 million), it is not surprising that the overall results for the 262 colleges are similar to the patterns for the more highly endowed colleges among the 669. Of special interest, however, Group 3 has an interesting exception to the general patterns: these colleges' percentage increase in endowment income included in current funds revenues kept pace with—and, in the aggregate, markedly exceeded— the corresponding increase in net current funds expenditures and mandatory transfers. Although this is apparently the result of the flexibility inherent in Group 3's rules (the increase in endowment income used for current operations not being tied tightly by rule to the extent of increase in endowment yield or in endowment market values), it is not obvious what it is about these colleges that induced them to select such a flexible approach. The median endowment size of the Group 3 colleges (at $111.5 million) is larger than the median for the whole set of colleges, and the Group 3 colleges have higher endowment income support rates. Perhaps this reliance on endowment included in current funds revenues has something to do with their choice of a less constraining spending rule.

Endowment Spending Rates for 1995 Relative to Optimal Spending Rates

Recall that, from 1989 to 1995, the endowment payout to current funds decreased as a percentage of endowment market value. The median endowment payout rate fell from 6.59% to 5.06%, and the aggregate endowment payout rate fell from 5.85% to 5.18%, and though this decline in endowment payout rate is not present to the same degree at all groups of colleges, it is generally present across all groups. The decline begs consideration of an important issue: are many private colleges now spending an inappropriately low share of their endowment?

Although there is much to be said for avoiding an attempt to calculate a single optimal endowment spending rate for private colleges as a whole, that is how the current section proceeds. Different colleges will have different target growth rates for endowment, different perspectives (based on different historical experiences) on expected investment rates of return, different tolerances for not reaching their target growth rates, and other significant differences that will affect their estimate of the "optimum" endowment spending rate. Though these differences are important, the current section seeks to provide a broad gauge of how private colleges' endowment spending, on the whole, compared in 1995 to what might be generally viewed as an optimal spending rate for that year.

Before turning to this question, it is appropriate to refer to the *NACUBO Endowment Study,* which provides an inclusive calculation of colleges' "endowment spending rate." Recent editions of the NACUBO study emphasize that in addition to the payment out of endowment typically identified by colleges there should be recognition of additional withdrawals: investment management advisory fees, custodial fees on investments, and "other distributions" out of endowment, e.g., for "nonrecurring capital expenditures funded from endowment" (NACUBO, 1996, p. xii). Including an estimate (based on NACUBO data) of investment management and advisory fees and custodial fees adds 0.53% to the 5.06% median payout rate, bringing up to 5.59% what will here be called the "endowment spending rate." Including these items adds 0.59% to the 5.18% aggregate endowment payout rate, resulting in an aggregate endowment spending rate of 5.77%.[12] Regarding "other distributions," some portion of these distributions is apt to have already been included in the estimates of endowment payout to current funds for the 669 colleges of the present study. If the NACUBO adjustments for "other distributions" were fully included here, "double counting" would be likely to occur to some (inestimable) extent. Thus, no adjustment is made here for these "other distributions" in the manner of NACUBO, but it should be kept in mind that they add 0.4% to NACUBO's calculation of the median endowment spending rate and 0.7% to its calculation of the aggregate endowment spending rate (NACUBO, 1996, p. 52).[13]

To estimate an optimal spending rate for the 669 colleges as of 1995, the current section draws on the work of Coiner (1990, 1992), who has offered a framework that identifies the optimal spending rate of a particular college as a function of several variables: the anticipated nominal rate of return on invested endowment assets (that anticipation recognizing that, looking to the future, the rate of return is a random variable whose probability distribution is reasonably assumed to be lognormal); the inflation rate; and the college's target growth rate for real (i.e., inflation-corrected) endowment. In Coiner's framework, new gifts into endowment are explicitly subsumed within the anticipated nominal rate of return. Under carefully specified assumptions (including the assumption that endowment spending takes place at the beginning of the year), he derives the spending rate that will yield a 50% probability that the actual endowment growth rate will meet the college's target level and a 50% probability that the target growth rate will not be met. That "optimal spending rate" is shown by Coiner to be determined as follows:

$f^* = 1 - [(1 + G)(1 + C^2)^{0.5}/M]$

where f^* = optimal spending rate

G = college's target growth rate of real endowment

M = mean of probability distribution of 1 + real rate of return on endowment; e.g., for a mean real rate of return of 5% per year, $M = 1.05$

C = coefficient of variation of that probability distribution (i.e., the standard deviation of that distribution divided by its mean, M)

Coiner emphasizes that, given the lognormality of the distribution of gross returns to the college's endowment, ignoring the uncertainty of returns (i.e., assuming $C = 0$) leads to a calculated f^* higher than the calculation that takes such uncertainty into consideration (i.e., recognizing that $C > 0$).

A first problem arises in calculating f^*: how does one estimate M and C? Coiner has aptly suggested using historical returns as the basis for such an estimate, but then the question arises of what historical period should be used. Taking the perspective of colleges looking backwards from 1995, the choice of 1994 as the ending year is straightforward. Motivated by the time period of data available from NACUBO, a first thought is to base the estimate on the 25 years of experience prior to 1995, i.e., on historical returns to colleges' portfolios for the years from 1970 through 1994. A graph of real rates of return (where the conversion from nominal to real rates of return is done using the Higher Education Price Index) is provided in Figure 1.

Whereas the above discussion refers to investment return on endowment, another important source of additions to endowment is new gifts. Thus, following Coiner's approach (1992), the "gift flow rate" is also included as part of the total rate of return on endowment. Information on the flow of gifts as a percentage of endowment market value was obtained from NACUBO's endowment survey. There is room for debate about whether such gifts should be included in the calculation, and more will be said about this later.[14]

In addition to showing estimates of M and C, Table 5 also shows various calculations of f^*, the optimal spending rate. The various f^* are calculated: on the basis of the actual estimate of C and on the arbitrary assumption that $C = 0$; and for different target growth rates ranging from 0 to 0.03. Thus, the table is instructive in a few major ways: it shows how recognizing the uncertainty of returns (i.e., recognizing $C > 0$) affects the calculation of f^*; and it shows how, given the estimated values of M and C, f^* depends on the target growth rate, G.

A reasonable starting point is to focus on the estimates of $G = 0$, i.e., a situation where colleges seek to maintain the real purchasing power of

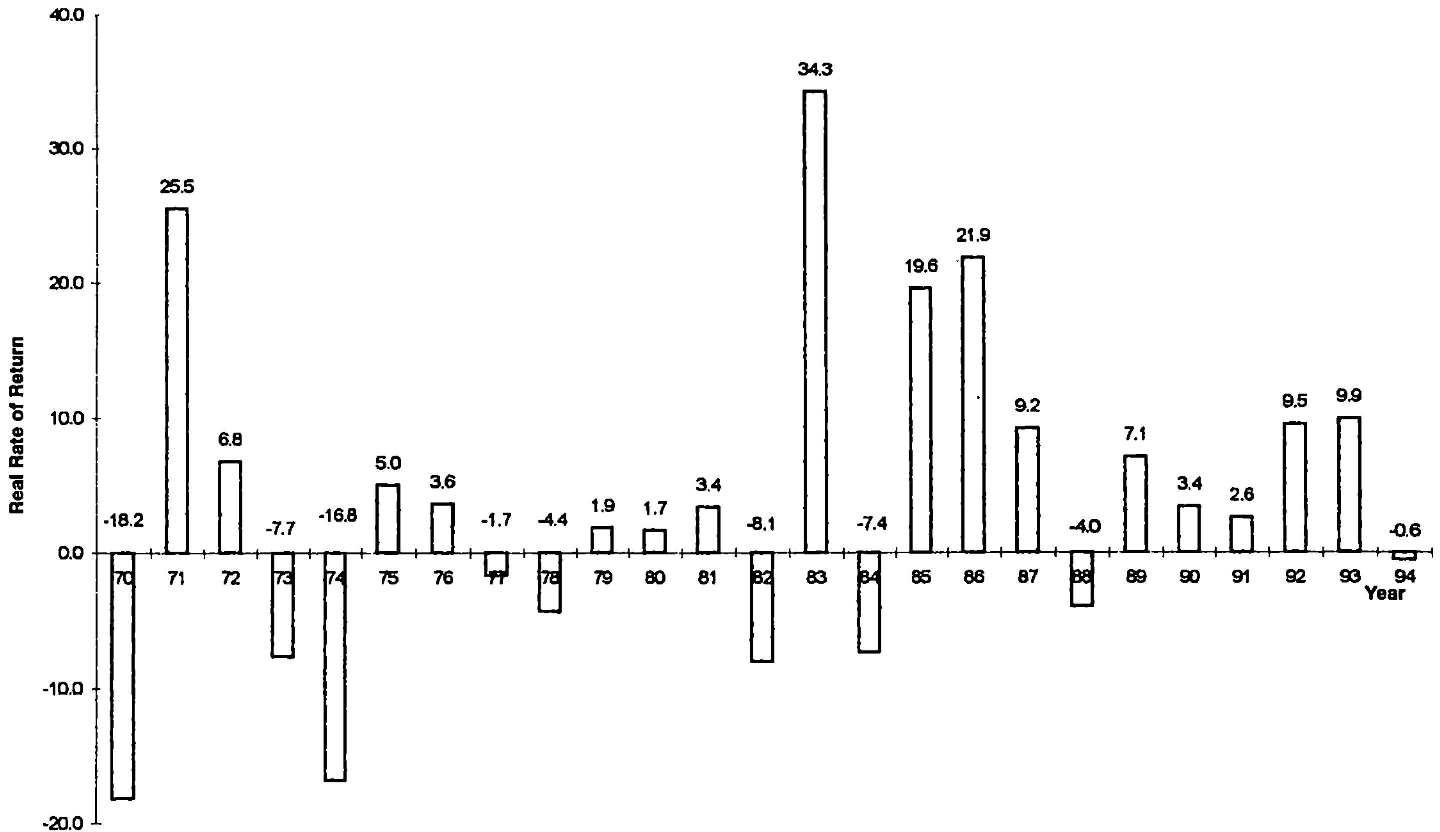

FIG. 1. Real Rates of Return on Colleges' Endowments, 1970–1994

SOURCE: Nominal rates of return from unpublished NACUBO data, converted to real rates of return using Higher Education Price Index.

TABLE 5

Alternative Estimates of the Optimal Spending Rate (f^*) for the 1995 Academic Year Under Various Assumptions for the Endowment Target Growth Rate (G)

Estimated Values of f^* (Optimal Spending Rate)				
For $G = 0$ and	Using Actual Estimate of $C = 0.1168$ and Assuming Different Target Growth Rates (G)			
$C = 0$	$G = 0$	$G = 0.01$	$G = 0.02$	$G = 0.03$
0.0649	0.0586	0.0492	0.0397	0.0303

NOTE: Based on the NACUBO report of actual investment returns (and gift flows) of colleges' endowments from 1970 through 1994, M is estimated to be 1.0694 and C is estimated to be 0.1168.

the endowment and, therefore, seek no growth in the inflation-corrected value of the endowment. Using the NACUBO compilation of historical experience from 1970 through 1994, the estimate of f^* (expressed as a percentage) is 5.86%. In comparison, for the 669 colleges as a whole, recall that the actual median endowment spending rate is estimated as 5.59% (consisting of 5.06% for the endowment payout rate and 0.53% for investment management and custodial fees) and the actual aggregate spending rate is estimated as 5.77% (consisting of 5.18% for the endowment payout rate and 0.59% for investment management and custodial fees). Also recall that these estimates of actual spending rate are biased downward to the extent that some distributions out of endowment are not being counted. Given the roughness of the estimates involved, a reasonable conclusion is that overall actual spending rates were about in line with the optimal spending rate.

Whatever way one uses these estimates to characterize the relationship of actual spending rates in 1995 to an optimal spending rate, it is important to emphasize that the optimal spending rate estimate flows from a series of assumptions and premises that are subject to question.

A first key premise is the use of Coiner's approach, which recognizes the uncertainty of future returns in estimating the optimal spending rate. Ignoring that uncertainty is tantamount to assuming $C = 0$ and would yield an estimated optimal spending rate of 6.49%. If, in addition, one assumes that endowment is spent at the end of the year, not the beginning, the estimated optimal spending rate corresponds to the mean real rate of return on endowment, which is here estimated to be 6.94%.[15] Coiner has articulately argued the importance of recognizing the uncertainty of returns, but much of the literature has (perhaps in what is intended as a rough approximation) associated the optimal spending rate with this mean real rate of return.[16]

Another key aspect of any estimate of optimal spending rate is the choice of historical rates of return used as the basis of expected future returns. The historical rates of return used to derive the 5.86% optimal spending rate estimate are those collected by NACUBO based on its surveys of colleges. If one instead uses simulated portfolios based on returns earned by various asset types held by colleges, the estimates of M, C and, therefore, of f^* change considerably:

- For example, Ibbotson Associates' total return performance data on large capitalization equities, long-term government bonds, and U.S. Treasury bills can be used to estimate the annual total return on simulated portfolios. A first simulated portfolio, designed to replicate the median asset allocation held in colleges' endowments as of 1994, has 62% in equities, 32% in bonds, and 6% in U.S. Treasury bills.[17] A second simulated portfolio reflects the tendency for colleges in the earlier years of the period to be proportionally less invested in equities and proportionally more invested in bonds and short-term "cash" instruments than as of 1994: this portfolio has 44% in equities, 44% in bonds, and 12% in Treasury bills.
- The Common Fund has offered colleges the opportunity to participate in an equity fund (since July 1971), a bond fund (since October 1976), and a short term ("cash equivalent") fund (since October 1974). Using the same portfolio allocations mentioned above, two portfolios are constructed using the performance record of The Common Fund's equity fund, bond fund, and short-term fund for the years available. For the years in which these funds were not available the gaps are filled with the aforementioned Ibbotson Associates data.
- These simulated portfolios point to higher estimates of rates of return available to colleges than those actually earned according to the NACUBO data. Thus, using these simulated portfolios results in higher estimates—ranging from 5.99 to 6.89%—of the optimal spending rate, f^*, than the 5.86% estimate based on the NACUBO data.[18] Because the 5.86% estimate is the one premised on the actual experience of colleges' endowments as surveyed and measured by NACUBO, it receives the major emphasis here. Nevertheless, the simulated portfolios reveal the sensitivity of the optimal spending rate estimate to one's reading of the historical record on investment returns available to colleges.

A similar point can be made about the time period over which one views the historical record. Using the NACUBO data and basing the estimate of optimal spending rate on the 20 years of experience from 1975 through 1994—not the 25 years from 1970 to 1994—raises the estimated optimal spending rate from 5.86% to 7.47%. The reason is that going back only 20 years excludes 5 years of mediocre investment performance—from 1970 through 1974—from the calculation. Still, the actual starting date used to generate the 5.86% optimal spending rate estimate was chosen quite arbitrarily: NACUBO data on colleges' endowment investment returns are available only back to 1970. Other caveats are also in order, and these caveats tend to work against the notion of a shortfall in actual relative to optimal endowment spending.

A first caveat concerns whether gifts should be included, as they have been in the above estimates of optimal spending rates, as equivalent to investment return on endowment. James Tobin's oft-quoted comment, though perhaps subject to differing interpretations, is relevant here:

> The trustees of an endowed institution . . . want to know . . . the rate of consumption from endowment which can be sustained indefinitely. . . . Consuming endowment income so defined means in principle that the existing endowment can continue to support the same set of activities that it is now supporting. This rule says that current consumption should not benefit from the prospects of future gifts to endowment. Sustainable consumption rises to encompass an enlarged scope of activities when, but not before, capital gifts enlarge the endowment. (Tobin, 1974, p. 427)

If gifts are excluded, the 1970–1994 NACUBO investment return data generate an estimate of $M = 1.0386$ (and $C = 0.1179$), a sharp reduction from the $M = 1.0694$ estimate when including gifts; this reduction in M corresponds, essentially, to a gift-giving rate of approximately 3% of endowment. The result is a sharp reduction in the estimated optimal spending rate, for the case of a zero target growth rate, from 5.86% to 3.05%. Actual spending rates are well above this gifts-excluded estimate of the optimal spending rate.

Another caveat also works to reinforce the notion that actual spending rates were not unduly low in 1995. All of the above discussion assumes a target growth rate of zero, a not unreasonable starting point. With $G = 0$, the real value of the endowment is being held constant, constituting a form of neutrality between the use of endowment for current and future purposes. Yet, if one assumes a slightly higher G, the notion being that many colleges might be seeking to increase the purchasing power of the endowment over time, the tendency is to lower the estimates of the optimal spending rate. Such an assumption of targeted growth in G might be considered especially appropriate because some portion of the "return" on endowment is due to the flow of new gifts into endowment. If, for example, the targeted $G = 0.01$, then the estimated optimal spending rate for 1995 using the NACUBO calculation was 4.92% (vs. 5.86% using $G = 0$).

This concern is reinforced by the fact that in assuming $G = 0$ and calculating the optimal spending rate for 1995, the inflation rate used to arrive at the "real" return on endowment was based on changes in the Higher Education Price Index (HEPI). This index is designed to provide a better gauge of increases in the prices of goods and services purchased by colleges than that provided by the more broadly calculated Consumer Price Index.[19] Yet, the HEPI is not designed to capture the extent of actual increases in spending per student, which appear to have exceeded the 6.1% annual rate of increase in the HEPI from the 1970 to the 1994 academic year.[20] One might argue that the calculation here of an optimal endowment spending rate for $G = 0$ is not intergenerationally neutral: the calculated spending rate is consistent with a 6.1% annual growth in the nominal value of endowment, but that 6.1% would not have kept pace with the actual increases in spending per student.

Then again, what does intergenerational neutrality require? As Hansmann (1990) has suggested, with the economy typically growing over the long run and providing a higher future standard of living, it might well "seem more equitable to have future generations subsidize the present" (Hansmann, 1990, p. 14). If improvements in the quality of higher education are to be offered to successive generations of students—and if that's what is reflected in the higher rate of increase in expenditures per student than the HEPI—then the burden of supporting that higher quality should not be placed on the current endowment. Although the argument of not placing an undue burden on current endowment is all the stronger if gifts to endowment are excluded in the calculation of M and the optimal spending rate, perhaps $G = 0$ does, indeed, serve as a reasonable assumption, at least as a starting point.

Another caveat is that the estimated optimal spending rates have been rising in recent years, so that it may have been only very recently that this optimum has been in line with the actual overall spending rate. Figure 2 shows the estimated optimal spending rates for 1985 through 1995 based on the NACUBO rate of return data (with gifts included). The 1985 estimate is based on the 15 years of prior experience from 1970 through 1984 (and 1985 is used as the starting point in order to assure at least 15 years of experience); years since 1985 incorporate the more recent years' experience with the 1986 estimate based on 16 years of experience, the 1987 estimate based on 17 years of experience, etc. Though the sharpest increases in estimated optimal spending rates occurred from 1986 through 1988 (reflecting the outstanding performance of equity and bond markets in the years ending from June 1985 through June 1987), the uptrend also continued with some interruptions through 1995.[21]

For the most part, this section has focused on the issue of whether the overall actual endowment spending rate had fallen substantially below the optimal rate as of 1995. Because that appears not to have been the

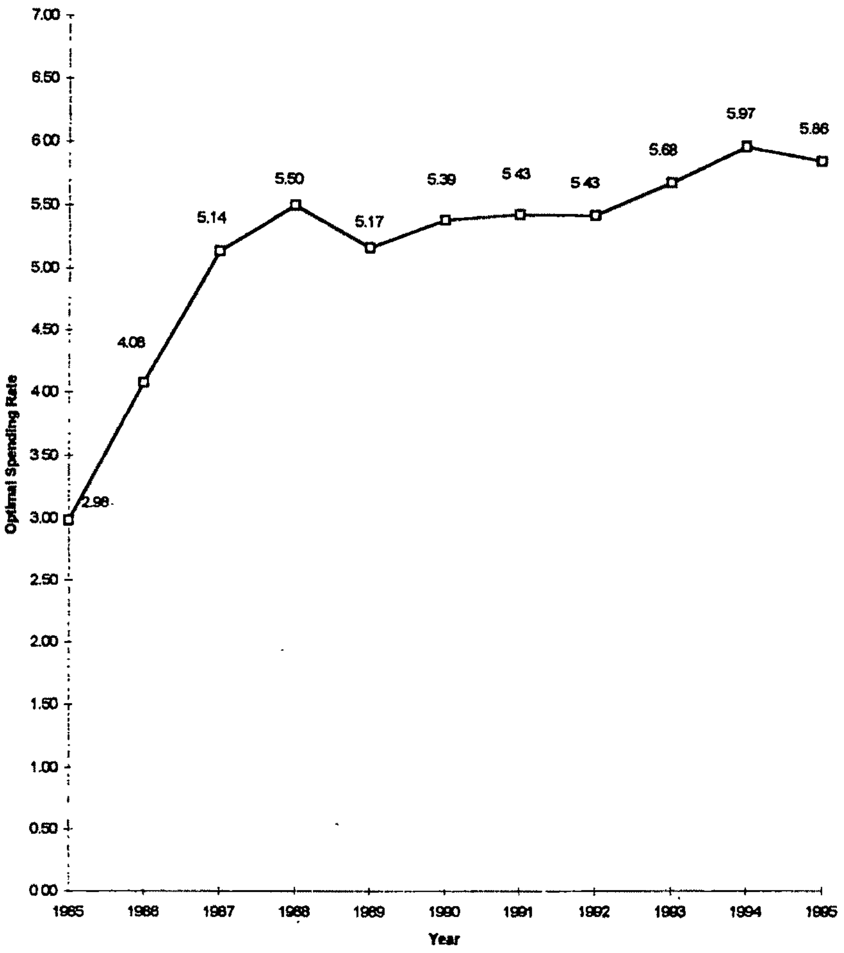

FIG. 2. Optimal Spending Rates, 1985–1995

case, the question arises whether the overall actual endowment spending rate was above the optimum as of 1989. That 1989 optimum is estimated here (based on the 19 years of experience from 1970 through 1988) to be 5.17%. Adjusted for investment management and custodial expenses, the median actual endowment spending rate in 1989 was 7.15%, and the aggregate actual endowment spending rate was 6.44%. Thus, the decline in endowment spending rates from 1989 to 1995 appears to have been a move from a situation of overspending relative to the optimum to a situation of spending about in line with the optimum.

Of course, as noted near the start of this section, the calculation of an optimal spending rate for colleges as a whole ignores important differences that exist among different colleges. Different colleges are apt to have different target growth rates, different colleges are apt to have different estimated probability distributions of real returns on endowment, and different colleges are apt to have different risk tolerances for the possibility of not achieving their target growth rates.

Conclusion

Taking private colleges on the whole (and recognizing that considerable variation existed around the central trend), colleges' spending rate on endowment was sharply lower in 1995 than in 1989: the portion of endowment devoted to current operations declined substantially as a percentage of the sharply growing market value of endowment.

A more mixed picture emerges concerning the growth in use of endowment for current operations relative to the growth in expenditures on current operations. This is partly due to accounting ambiguities in the data collected in the IPEDS survey. Even focusing just on what is here termed "endowment payout," differences in the behavior of less endowed relative to more highly endowed colleges yield a mixed picture: with less endowed colleges dominating the median results, the median percentage increase in endowment payout lagged the growth in operating expenditures; with more highly endowed colleges dominating the aggregate results, the aggregate percentage increase in endowment payout kept pace with operating expenditures. Even with a declining spending rate relative to endowment market value, median growth in endowment payout to current funds would have kept pace with the increase in net current funds expenditures, had these expenditures grown at a rate corresponding to (not well above) the Higher Education Price Index.

With a declining spending rate on the market value of endowment, the issue arises of whether actual spending rates in 1995 were below the optimal spending rate. Enough ambiguity surrounds the calculation of an optimal spending rate to undermine any firm conclusion. For example, the exclusion of new gifts to endowments (as analogous to investment returns on current endowment) dramatically reduces the estimated optimal spending rate, driving it well below actual spending rates. Nevertheless, including new gifts, the estimates here can be read to indicate that, for colleges as a whole, actual spending rates in 1995 were roughly in line with the optimal rate. To the extent that actual rates were in line with (or even slightly below) the optimum, it may have been a quite recent phenomenon: due to the strong investment performance of endowments in recent years, the estimate of the optimum for 1995 was higher than in the late 1980s.

Although the decline in endowment spending rate may have brought this rate in line with the optimum for colleges as a whole, recent experience may be an apt stimulus for colleges to place special scrutiny on the endowment spending rule that they are employing. Considerable variation exists among colleges, and it is inappropriate for any individual college to take comfort in the overall results presented here. Each college must assess its own recent use of endowment in light of its particular current operating needs and its aspirations for growth in endowment over time. Although strongly growing endowment market values may appropriately orient many colleges to a self-examination focused around whether endowment is being used sufficiently to support current operations, this may be a good time for many colleges to consider the flip side: are colleges prepared for a period of market declines?

There is much to be said for the self-discipline that a spending rule imposes, and much to be said for a "smoothing" spending rule that moderates the extent of annual change in endowment spending relative to changes in current endowment market value. To the extent that many colleges are now using a spending rule based on a percentage applied to a *moving average* of endowment market values, such a rule will cushion the decline in endowment spending that occurs if endowment market values fall, and there may be other smoothing approaches that are superior to a simple moving average. One alternative worthy of special consideration is the "exponentially weighted moving average smoothing rule" suggested by Massy (1996, pp. 107–110), which places considerable weight on growth in endowment spending at a specified rate over the previous year.[22]

Nevertheless, such smoothing rules are not designed to cushion colleges' endowment spending against lengthy cyclical declines in investment returns. Given a historical record that points to the likelihood, at some point, of such sustained declines, those entrusted with the supervision of colleges' endowments might appropriately consider their endowment spending response to sustained declines. In the midst of strong investment returns with sharply rising market values, concerns about endowment underspending are apt to occur. A more difficult problem, which it would be healthy to anticipate now, is the strain that will occur in endowment support for current operations in the midst of sustained periods of sub-par investment returns.

Notes

[1] Especially helpful discussions on this and other issues relating to "investing endowment assets" are provided by Williamson (1975) and Massy (1990).

[2] Yet, in a 1972 edition of its report, the Committee specifically denied "recommending any particular kind of investment, whether stocks, bonds or any other" (p. x).

[3] The accounting guidelines in effect for the 1989 and 1995 academic years are provided in the American Institute of Certified Public Accountants' *Audits of Colleges and Universities* (1975): "Income from investments of endowment and similar funds does not include capital gains and losses since such gains and losses are accounted for in the endowment and similar funds group. If a portion of gains of endowment or quasi-endowment funds investments is utilized for current operating purposes, the portion so utilized should be reported as a transfer rather than as revenues" (p. 22). The audit guide provides the following rationale for this accounting approach: "The total return concept continues . . . to cause accountants difficulty in that the concept thus far has produced few, if any, practical applications which appear to be *objectively determinable*. . . . The practical applications of the total return concept utilized to date amount substantively to the selection of a 'spending rate' usually relating the rate to the market value of the portfolio. They appear in some cases to involve an intolerable element of arbitrariness. Consequently, until a general practice evolves which is *objectively determinable*, the guide would do a disservice to higher education and the accounting profession to sanction as a permissible accounting treatment the inclusion in revenue of gains utilized under a total return approach. . . . The fact that this guide does not sanction recognition of appropriated gains as revenues should not inhibit the application of the total return policy of investment management, a policy which has economic merit" (pp. 39–40).

[4] Note that the median percentage change need not equal the percentage change in the median amounts. The median percentage change is the value that divides the 669 colleges into two equal parts—334 with percentage changes below this median, and 334 with percentage changes above this median. This value may (and, in the results reported here, does) differ from the percentage change in the median amounts.

[5] Using end-of-the-year endowment market values, the median percentage increase was 66.0%, and the aggregate percentage increase was 65.9%. From June 30, 1989, to June 30, 1995, the S&P 500 index increased 106.1%, and the Lehman Brothers Aggregate Bond Index increased 65.9%.

[6] The endowment support rates cited here are analogous to the "endowment-support ratio" defined by Massy (1990, p. 44) as equal to [spending rate x endowment ($)]/[budget($)], where the budget corresponds to current funds revenues.

[7] This slight increase from 7.09 to 7.10% corresponds to the information reported above that the aggregate percentage increase in endowment payout of 45.9% slightly exceeded the 45.7% increase in net current funds expenditures.

[8] This Higher Education Price Index is designed "to measure changes over time in the price of goods and services colleges must purchase to operate" (Davis, 1997, p. 19).

[9] Some portion of the increase in expenditures is due to an increase in enrollments (calculated here on the basis of IPEDS enrollment data by counting a full-time student as one full-time equivalent and a part-time student as one-third of a full-time equivalent). The median percentage increase in student (full-time equivalent) enrollments at the 669 colleges from fall 1988 to fall 1994 was 7.0% and the corresponding aggregate percentage increase was 7.6%.

[10] Along with the variation among colleges grouped by endowment size in reliance on endowment to support current operating expenditures, there is a substantial difference in the *level* of endowment yield. With colleges with higher endowments investing a higher share of their endowments in equities and a lower share in bonds than lower endowment colleges, such higher endowment colleges have a lower endowment yield.

[11] Of the 179 colleges in Group 2, 168 applied the prespecified percentage to a moving average of endowment market values; and of these 168, 147 used a moving average based on 3 or more past years' endowment market values.

[12] The figures on investment management and custodial fees are drawn from pp.

255–56 of the *1995 NACUBO Endowment Study,* adjusted to a percentage based on an estimate of beginning-of-the-year endowment market values.

[13] Although the better phrase for what is presented here might be "endowment withdrawal rate," in keeping with the term most common in the literature, the phrase "endowment spending rate" will be used. Once adjusted to being based on beginning-of-the-year endowment market values, the NACUBO figures for total withdrawals from endowment are very close to the estimates here of endowment spending rates for 1995: NACUBO's adjusted median endowment spending rate for all colleges was 5.7% (compared to the 5.59% estimate here) and the dollar-weighted mean was 5.9% (compared to the aggregate 5.77% here). The NACUBO data include public and private colleges; using equal-weighted means (the only way NACUBO presents the public-private split), public institutions had a slightly higher rate of total withdrawals from endowment than did private institutions.

[14] For the years 1975 through 1987, the figure used was that for "independent" (as opposed to "public") institutions; this figure was taken from Table 75 on p. 86 of the *1987 NACUBO Endowment Study*. The figures used for years 1970 through 1974, not otherwise available, were assumed to be the same as the average for the years 1975 through 1979. For the years 1988 through 1994, the information was obtained from the table entitled "Endowment Gift Flow Rates" in successive issues of the *NACUBO Endowment Study;* the figure used is an estimate of the median gift flow rate for private institutions (estimated—because the median figure for private institutions was no longer presented—by assuming that the median return for private institutions bore the same relationship to that for "all" institutions as in the years from 1975 through 1987). Of course, there are other sources of additions to endowment beyond gifts and investment return. For example, colleges may transfer current funds to endowment. The available IPEDS data do not provide any means of identifying such transfers or other sources of additions to endowment.

[15] Note that if one assumes $C = 0$ and ignores the uncertainty of returns, the optimal spending rate reduces to being equal to $1-[(1+G)/M]$. If one further assumes that $G = 0$, then the optimal spending rate equals $1-(1/M)$. If instead of assuming beginning-of-the-year endowment spending, one assumed end-of-the-year endowment spending, then with $C = 0$ and $G = 0$, the optimal spending rate equals $M-1$; and because $M = 1+$the mean of the probability distribution of the real rate of return, $M-1$ equals this mean real rate of return.

[16] Coiner (1990) emphasizes that the median and mean of the lognormal distribution (unlike the normal distribution) differ. He demonstrates that "the spending fraction that causes mean endowment to grow at any given target rate exceeds the fraction that causes median endowment to grow at that rate. Which fraction should be chosen? The latter. If any larger fraction is chosen, in the long-run the probability approaches one that endowment will fail to grow at the target rate" (p. 157).

[17] As of June 30, 1994, the median allocation of colleges' endowment assets was 54.2% in common stock, 28.5% in fixed income securities, and 5.3% in cash and cash equivalents (NACUBO, 1996, p. 204). All other categories had a median of 0% allocation. Taking the three categories with positive figures and allocating the full 100% of allocation among these three categories proportionally to the respective medians yields the 62%, 32%, 6% allocation used for the first of the simulated portfolios.

[18] The portfolios based on Ibbotson Associates' data generated optimal spending rates of 6.32% (in the portfolio more weighted with equities) and 5.99%. The portfolios based on The Common Fund's returns generated optimal spending rates of 6.89% (in the portfolio more weighted with equities) and 6.58%.

[19] The actual difference has been small over the period used for the optimal spending rate: the Higher Education Price Index increased by 6.1% per year from 1970 through 1994 while the CPI increased by 5.8% per year.

[20] See Davis (1997, p. 19ff). Also, using Table 331 (p. 343) of U.S. Department of Education, National Center for Education Statistics (1996), current funds expenditures per

student at 4-year private institutions rose at an annual rate of 7.7% from 1970–71 (the first year available in the table) to 1993–94 vs. the 6.1% annual rate of increase in the Higher Education Price Index over this period.

[21] Of course, being based on fewer years of past experience, the optimal spending rate estimates of the earlier years (closer to 1985) are more sensitive to an additional year's experience than the later years (closer to 1995).

A final qualification flows from the use of a "moving average" endowment spending approach by many colleges. Over half the colleges responding to the NACUBO survey were using a rule in which a specified percentage is spent of a *moving* average of endowment market value. Of those colleges using a moving average approach, the most common version was applying a specified percentage to a *three-year* moving average—which, for endowment spending during 1995, might be based on an average of June 1992, June 1993, and June 1994 endowment market values. Given the endowment growth that typically occurs, the actual spending rate as a percentage of the most recent year's endowment market value would be lower than the stated spending rate applied to the three-year moving average (Massy; 1990, p. 51). As a separate point, inflation-corrected returns on endowment for 1993 and 1994 together were somewhat above the average for the 25-year period from 1969 through 1994. For colleges using a three-year moving average, the estimate here is that the resulting actual spending rate was slightly lower—less than 0.1%—than it would have been if inflation-corrected returns on endowment for 1993 and 1994 had been in line with the returns for the entire period from 1970 through 1994.

[22] As explained by Massy (1990) in detail, this procedure calculates endowment spending as a weighted average of what would have emerged from using a specified spending rate of pre-smoothed, start-of-the-year endowment market value and what would have emerged if endowment spending had been set on the basis of a specified increment over the previous year's endowment spending. Massy "suggests that one-third is about right, though the exact value is a matter of institutional choice" (p. 33) as the weight, i.e., a one-third weight on a spending rate applied to current endowment market value and about a two-thirds weight on the specified increment over the previous year's endowment spending.

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Teresa Isabelle Daza Campbell
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Faculty and Administrators' Attitudes Toward Potential Conflicts of Interest, Commitment, and Equity in University-Industry Relationships

In the 1940s the federal government began awarding grants and contracts for significant amounts of money to academic researchers who pursued paths of national as well as scholarly interest (Smith, 1990). During the post-World War II years, the conduct of research through federal sponsorship became a source of prestige and autonomy within the academic profession. In the mid-1970s the federal share of academic research funding began to decrease, and faculty and administrators began to look for other sources of funding. At the same time, business leaders voiced concern that governmental regulations, restrictions, and processes were impending their ability to compete in the global marketplace. In the 1980s the U.S. government responded by encouraging increased cooperation between universities and firms, allowing universities to hold patents on federally sponsored research and financing research projects in which universities and firms were both active participants (Campbell, 1995, 1997; Campbell & Slaughter, 1999; Slaughter & Rhoades, 1996). Although the academic and industrial sectors had worked together on a limited basis before 1980, over the past fifteen years, collaborative relationships have intensified, and increasing numbers of academics are seeking ways to position themselves close to the commercial marketplace.

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Ample literature has tracked this activity between academics and industry, particularly since the late 1970s (Blumenthal, Campbell, Anderson, Causino, & Louis, 1997; Blumenthal, Campbell, Causino, & Louis, 1996a, 1996b; Blumenthal, Epstein, & Maxwell, 1986; Blumenthal, Gluck, Louis, & Wise, 1986a, 1986b; Bowie, 1994; Braxton & Bayer, 1996; Dooris & Fairweather, 1994; Etzkowitz, 1983, 1990, 1992, 1993; Fairweather, 1988, 1989, 1993; Fassin, 1991; Feller, 1992; Hackett, 1990; Lambright & Rahm, 1992; Lee, 1994, 1995; Louis, Anderson, & Rosenberg, 1995; Louis, Blumenthal, Gluck, & Stoto, 1989; Rahm, 1994a, 1994b; Wood, 1992; Zuckerman, 1993). Those in favor of increased interaction suggest that, for the most part, faculty and administrators[1] approach industry-sponsored research as professionals who strive to maintain Mertonian norms such as rationality, impartiality, and objectivity rather than allow themselves to be influenced by the potential financial gains that might arise from their research. Their discussions focus on the benefits that arise out of university-industry relationships and suggest that most adverse impacts on institutions are anomalous and readily remedied (Bok, 1982; Geisler & Rubenstein, 1989; Peters & Fusfeld, 1982). Those more skeptical of this movement toward the market warn that the potential to generate revenue at personal and institutional levels has had a multifaceted, not always positive, impact on academe. For example, administrators are increasingly treating faculty in the same manner that industrial managers treat their employees and, as a result, faculty are losing ownership of their discoveries and autonomy over their professional lives (Dickson, 1984; Florig, 1986; Luton & Zinke, 1989; Rhoades & Slaughter, 1991a, 1991b; Slaughter, 1990; Slaughter & Rhoades, 1990). Although faculty involvement in collaborative activity is encouraged by federal sponsors and university leaders (Campbell, 1995, 1997), thus far there is neither a large body of university policy nor professional customs and norms that guide and shape entrepreneurial faculty behavior. Administrators, faculty, and business persons are in the process of establishing new entrepreneurial norms, and this provides a unique opportunity to study the reshaping of professional roles as well as the tensions and conflicts that surround such changes.

Some tension between faculty and administrators has been accepted as an enduring part of academic life, but few studies have explored empirically the possibility that differences between the two groups may be amplified when industry enters into the picture. Further, new tensions may arise out of the unique considerations related to universities' ties with for-profit, competitive firms. This study explores areas of possible tension between faculty and administrators engaged in university-industry activity by investigating the key sources from which tensions are most likely to emerge: issues related to potential conflicts of interest (conflict over financial issues, e.g., revenue-generating opportunities through patents and licensing), conflict of commitment (conflict over competing faculty responsibilities, e.g., whether faculty allocate more time to their traditional academic duties or to their industrial sponsor), and conflict over internal equity (conflict over the university's internal distribution of rewards and workload, e.g., whether faculty involved in university-industry activity should spend less time on teaching than those who are not) (Campbell, 1995, 1997). This study looked at the views of academics and administrators *not* involved in university-industry collaborative activity as well as of those who are, to compare the two groups and place conflict topics in a context that speaks to the university community as a whole. In addition, taking into consideration the research that suggests that disciplinary differences can account for variation in attitudinal response (Braxton & Hagens, 1996), we conducted secondary analyses to explore connections between involvement with a for-profit firm and academic discipline. These analyses provided further insight into differences in perspectives by illuminating similarities and differences in responses based on involvement compared with academic field group.

Research Questions and Theory

The research questions that informed this study were: Do faculty involved in university-industry activity hold views toward topics related to potential conflicts that differ from the views of university administrators similarly involved? If so, in what areas do the two groups disagree and what are the areas of consensus? Are the views of academics not involved in university-industry relations different from the views of those who are? If so, in what areas do academics' perspectives converge and diverge?

A fundamental premise of this study was that universities are seeking resources from industry, at the same time firms are seeking knowledge, know-how, and people from universities. Dollars and knowledge, know-how and people are the resources being exchanged in university-industry connections. Resource dependency theory (Pfeffer, 1994; Pfeffer & Davis-Blake, 1987; Pfeffer & Salancik, 1978), suggests that organizations, and the units within them, are engaged in an enduring competition over scarce resources. Conflicts and struggles to obtain these resources are an ongoing part of organizational life. Institutions, agencies, or groups that control and allocate these resources have the power to decide who will prosper and who will not. Individuals and organizations contending for resources build coalitions and shape their actions and reactions in an effort to increase their share of the resources or to sustain organizational activity (Salancik & Pfeffer, 1974). Since the 1980s the decline in federal and state share of funds for universities has intensified faculty's and administrators's quest for resources. Universities are seeking to maintain and increase external funding, especially revenue streams (e.g., research dollars) that maximize prestige[2] (Slaughter & Leslie, 1997). As the proportion of federal funds for basic research decreased relative to the total support a university received for research and development (R&D), sponsorship from industry became more important. University-industry partnerships often center on research that involves cutting-edge work in high technology fields deemed essential to global competition (Campbell, 1995; Campbell & Slaughter, 1995; Slaughter & Rhoades, 1996). Thus, monies for research connected to highly valued market areas are substituted for dollars lost from support for basic R&D.[3] Industry sponsorship becomes, in Pfeffer & Salancik's terms, a critical resource necessary to sustain the external revenues and prestige of research universities.

Whereas resource dependency theory was used to understand the incentive to enter into relationships, professionalization theories were utilized to hypothesize a difference between the perspectives of administrators and faculty. Theories of professionalization examine "monopolies obtained through various forms of licensure and accreditation and the effects these have on control over expert knowledge, focusing on professions as a whole (Slaughter & Leslie 1997)." These theories involve several interconnected ideas (Abbott, 1990; Bok, 1993; Brint, 1994; Friedson, 1986; Starr, 1982). University relationships with industry are valorized through federal policy efforts to improve the global competitiveness of the United States through economic development and precompetitive research. Although initially met with resistance, academic affiliation with high technology commercial markets are increasingly becoming a source of academic resources and prestige (Lee, 1994; Lee & Gaertner, 1994; Rahm, 1994a, 1994b). Simultaneously and paradoxically, many professions are being destabilized by market encroachment. Profit and competition are increasingly entering occupations and fields historically controlled by professions, challenging their monopolies of practice and their authority as experts. The tension in medicine between physicians and HMOs is a case in point. A similar dynamic is operation in academe, where corporations are increasingly interested in intellectual property and close involvement with university researchers, often precipitating conflict between business and academic values. Biotechnology is another case in point (Kenney, 1986; Kevles & Hood, 1992; Krimsky, 1991). With the commercial marketplace becoming a vehicle to increase prestige, professionalization theory suggests that academics engaged in relations with industry will utilize their specialization and expertise to develop commercial activity as a resource and power base to increase autonomy and control over their professional lives, even as markets generally serve to destabilize professions.

Using this framework, the hypotheses were: (1) faculty's and administrators' views toward potential conflicts topics will differ on issues related to control over their relationships with industry, such that faculty will seek ways to control their relationships with industry, at the same time administrators will try to maintain control over faculty's participation; (2) administrators and faculty involved in university-industry activity will respond to potential conflicts topics in a manner that suggests they are more willing to expand the activity than those not involved; and (3) faculty not involved in university-industry activity will be less supportive than involved faculty of inequities across disciplines that might arise out of collaborative activity.

In other words, faculty and administrators will compete to control resources and relationships generated by university-industry activity. Administrators will want to control resources that they define as critical to institutional well-being. Faculty, as professionals whose expertise is critical to bring in these external revenues, whether in the form of patents or partnerships, will claim they should control the resources and relationships surrounding university-industry activity, thereby increasing their professional autonomy. Thus, faculty's and administrators' perspectives regarding potentially divisive topics are likely to be somewhat different, with each favoring activities that provided their respective group with the greatest authority over university-industry relationships. Although we expect faculty to be unified in their desire for control over professional activities, at the same time we anticipate that academics who are involved in activities related to the commercial marketplace will differ in their perspective toward issues related to equity and traditional academic norms from those who are not involved, suggesting a movement toward bifurcation among academics based on relationships with the private sector.

The difficulty is determining whether distinct perspectives are explained by involvement with firms or by the respondent's academic discipline. Previous research has shown that academic discipline affects views toward some of the issues discussed in this study, including faculty teaching loads, salaries, commitment to the institution, and teaching role performance (Braxton & Hargens, 1996; Hayward, 1986; Lodahl & Gordon, 1973). This literature suggests that faculty from fields such as fine arts and humanities (often called low-consensus fields or soft disciplines), hold perspectives that contrast with the views expressed by faculty from fields such as science and engineering (also called high-consensus or hard disciplines). Because fine arts and social sciences are generally considered to be limited in their ability to interact with the commercial marketplace, the prevailing assumption is that they represent the majority of respondents categorized as not-involved. This supposition is not completely true for this study, given that 30% of the *non*-involved respondents were from the fields of science/engineering and 13% of faculty from social science/fine arts *were* involved in relationships with firms (Table 4), suggesting that caution should be exercised when characterizing any particular academic field as being involved or not.

Although the primary focus of this study was to better understand whether involvement with for-profit firms shapes perspectives toward topics related to potential conflicts, we included an investigation of disciplinary differences that may exist. The distinctive cultures of the disciplines may be in the process of being eroded by market opportunities. Faculty relations to markets, independent of field or discipline may have to be incorporated into explanations of difference. We expect differences in attitudinal responses to potential conflicts topics to cut across fields, such that involvement with the private sector increasingly will provide a salient explanation of divergent views, particularly for topics related to commercialization of academic knowledge.

Design and Method

This study draws from a database containing the perspectives of university and industry respondents toward a diverse array of issues related to university-industry relationships. Here we focus solely on the responses from academe, including faculty and administrators. Questionnaires were mailed to representatives of the 12 largest public[4] institutions in each of the Carnegie classifications.[5] Thus, a total of 86 colleges and universities were targeted for participation. Despite these efforts to solicit input from all types of colleges and universities, more than three quarters of the participants represented research-intensive, doctorate granting universities; 21% of the responses were from individuals in institutions classified as Comprehensive I/II and Liberal Arts I/II. Given this limited response by representatives of schools that are not research intensive, we were unable to conduct meaningful analyses of connections between institutional type and attitudinal response.

The survey instrument was comprised of questions in a Likert-scale format[6] that asked participants to indicate the degree to which they agree with a statement or the extent to which specific issues should be considered a conflict of interest (see Tables 5–7 for samples of the survey questions). Statements were coded to create a consistent direction and range of Likert-scale responses, with 6 signifying the strongest support for the stated activity and 1 indicating the least support for the item in question. Survey questions utilized in this study focused on topics that were consistently raised in the literature, with particular emphasis on thorny issues. The survey questions were designed to tap complex areas of value convergence in order to detect whether or not participants had reached a consensus in their views toward these issues. To investigate the possibility that academics involved in university-industry partnerships were developing perspectives that may be distinct from perspectives of those *not* participating in university-industry relations, the survey solicited participation from individuals who fall into both categories. The study included faculty from typically collaborative fields, such as science and engineering, as well as those from a variety of other fields, including in the social sciences, fine arts, and business. Respondents for this study included 127 university administrators and 280 faculty members who reported that they represented the fields of social science and fine arts (28%), science and engineering (43%), and business (29%).

Calculation of the survey response rate was a challenge, because targeted respondents were asked to distribute questionnaires to individuals within their department; it was impossible to determine whether these unknown potential respondents actually received a survey instrument. Although it is conceivable that many of these anonymous respondents never had an opportunity to participate, particularly in cases where the known and targeted respondent chose not to reply, in a deliberate effort to follow the most conservative course, it was assumed that the additional surveys *were* distributed. Using this assumption, the response rate for eligible[7] survey participants was 34%. These respondents represented 76% of the targeted organizations.[8]

To analyze the data based on involvement, all academic respondents were grouped based on their involvement with the for-profit sector.[9] Not everyone clearly identified themselves as being administrators or faculty, nor did they clearly identify their title or discipline. Individuals who could clearly be distinguished as either an administrator or a faculty member were extracted, yielding a sample of 407 respondents (see Table 1).

For analysis based on discipline, participants were asked to select from several choices that characterized the area of their position within the organization. Due to a small sample size for each of the academic disciplines, related fields were grouped in accordance with the "hard-soft" dimension of Biglan's (1973) model. Those specifying the College of Fine Arts and College of Social Sciences were combined into one academic field grouping, and those specifying College of Science and College of Engineering were combined into another field group. Although some scholars might suggest Engineering should be combined with Business because both are professional schools (Stokes, 1997), this initial investigation follows the empirically validated Biglan model. Participants selecting the College of Business remained in a separate category. Deans of these colleges were categorized as administrators, department heads as faculty. It is important to note that the academic field groupings do not differentiate between those involved in relationships with firms due to limited data in each of the possible breakdown groups.

Analysis of variance (ANOVA) was used to analyze respondents' views toward scaled measures of potential conflicts as well as toward each of the individual statements with the scales.[10] The scaled measures for each of the conflicts topics were developed in a previous study (Campbell, 1995, 1997) using factor analysis to summarize the variety and complexity of issues falling within each of the three potential conflict areas. The factor analysis utilized an oblique rotation,[11] acknowledging the possibility that the constructs were somewhat related. The correlations were not strong, indicating that distinct concepts had been identified. Scales for each of the three types of conflicts were developed, and the reliabilities of each of these groupings ranged from a standardized alpha of 0.64 to 0.75. Nunnally (1978) supports the acceptability of these alphas. ANOVAs were conducted to identify pairs significantly different at the 0.01, 0.05, and 0.10 levels (see Tables 2, 3, 5–10 for specific *p* values for the scaled measures and individual statements).

Findings and Results

Conflicts Topics – In Aggregate

To obtain an overall understanding of possible differences in perspectives toward topics related to potential conflicts, respondents' views toward the scaled measures of potential conflicts of interest, commitment,

TABLE 1
Respondent Characteristics

Category *n*	Academics Involved in Relationships with Firms	Academics Not Involved in Relationships with Firms	TOTALS
University administrators & deans	93	34	127
University faculty & dept. heads	184	96	280
TOTALS	277	130	407

and internal equity were analyzed (see Tables 2 & 3). Potential conflict of interest issues center on opportunities for financial gain and revenue-generating activities. Potential conflict of commitment refers to issues related to academics' allocation of time and effort to their various roles: teaching, research, and service. Potential conflict over internal equity refers to topics related to the distribution of resources and responsibilities within an organization, including access to departmental resources and responsibilities as a teacher and mentor to students (Campbell, 1995, 1997). It should be understood that the data do not report actual behaviors but capture perspectives toward topics related to potential conflicts. For clarity in reading, from this point forward, the word "potential" is implied but not explicitly stated.

Conflict of interest scale. When responses to the conflict of interest scale were examined, the data suggested that strains might exist between involved and non-involved faculty (Table 2). In the aggregate, faculty involved with industry and faculty not involved are the two groups with significantly different perspectives; there were no differences in the views of faculty and administrators for the conflict of interest scale. Generally, faculty involved with industry were more positive toward conflict of interest topics, which focus on opportunities to generate revenue through their interaction, than were faculty who did not collaborate with industry. The analyses by academic field revealed social science/fine arts faculty held significantly different views toward conflicts of interest topics compared with administrators, scientists/engineers, and business faculty (Table 3). This suggests faculty who are not close to the market (e.g., those not involved with firms and those from social science/fine arts) are less supportive of revenue-generating activities than faculty who have greater opportunity to interact with industry (e.g., involved faculty, administrators, and those from science/engineering and business).

Conflict of commitment scale. Conflict of commitment was the only scale on which faculty and administrators' views were significantly different (Table 2). Administrators involved in university-industry activity and faculty members not involved held views that were similar to each other, and the views of faculty who participated in university-industry relations were distinct from all other groups. Interestingly, academics from all academic field groups held similar views, with the only significant difference occurring between administrators and business faculty (Table 3). These findings for the scaled measure indicate that involved faculty appear willing to relinquish their responsibilities for traditional academic duties such as teaching and public service, creating tensions between involved faculty and administrators. Administrators expect fac-

TABLE 2

Results of Analyses of Variance for the Effects of Faculty/Administrator Involvement on COI, COC, CIE

				Scheffé Tests for Differences Between					
Scaled Measures	*df*	SS	Overall *F*	Involved Faculty ($n \geq 162$) and Involved Administrators	Non-Involved Faculty ($n \geq 81$) and Involved Faculty	Non-Involved Administrators ($n \geq 31$) and Involved Faculty	Involved Administrators ($n \geq 86$) and Non-Involved Faculty	Non-Involved Faculty and Non-Involved Administrators	Involved Administrators and Non-Involved Administrators
Conflict of interest	3	19.94	14.14***	4.49	3.96***	4.24	4.54***		
Conflict of commitment	3	10.90	9.44***	2.43***	2.15***	2.20	2.03		
Conflict over internal equity	3	2.22	1.57	3.09	2.96	2.86	3.10		

Where the sample size and mean is for the first comparison group mentioned in the column header and
*$p \leq 0.10$; **$p \leq 0.05$; ***$p \leq 0.01$.

TABLE 3

Results of Analyses of Variance for the Effects of Academic Field Group on COI, COC, CIE

				Scheffé Tests for Differences Between					
Scaled Measures	*df*	SS	Overall *F*	Social Science/ Fine Arts and ($n \geq 60$) Engineering/ Science	Business and ($n \geq 67$) Social Science/ Fine Arts	Administrators and ($n \geq 116$) Social Science/ Fine Arts	Engineering/ Science ($n \geq 102$) and Business	Engineering/ Science and Administrators	Business and Administrators
Conflict of interest	3	13.55	9.2157***	3.94***	4.47***	4.42***	4.47***		
Conflict of commitment	3	6.19	4.8151***	2.33	2.46	2.10	2.28		***
Conflict over internal equity	3	3.69	2.6172**	2.94	3.27*	3.08	3.04		

Where the sample size and mean is for the first comparison group mentioned in the column header and
*$p \leq 0.10$; **$p \leq 0.05$; ***$p \leq 0.01$.

TABLE 4

Respondent Disciplines Based on Involvement

Category *N* %	Academics Involved in Relationships with Firms	Academics Not Involved in Relationships with Firms	TOTALS
Provost V.P. research Director of technology transfer office Director of sponsored projects office	63 25%	18 15%	81 22%
College of Social Science College of Fine Arts	34 13%	49 40%	83 22%
College of Science College of Engineering	91 36%	37 30%	128 34%
College of Business	65 26%	19 15%	84 22%
TOTALS	253	123	376

ulty to remain loyal to their institutions and to sustain their traditional obligations (e.g., teaching), even as they pursue opportunities with the private sector. This difference in perspective is hidden when responses are aggregated by academic field. Business faculty are the most willing to minimize academic duties, perhaps reflecting the culture of industry that also shapes the perspective of involved faculty toward academic duties and institutional commitment.

Conflict over internal equity scale. An examination of conflict over internal equity issues revealed that faculty and administrators shared similar views, whether they were involved in collaborative activity or not (Table 2). This finding held true when faculty views based on discipline were examined; individuals from social sciences/fine arts agreed with administrators and faculty in science/engineering (Table 3). The pattern of response by business faculty toward issues related to conflict of commitment is repeated for conflict over internal equity, with business faculty being the most approving of inequities within the organization. Although this view is significantly different than the perspective of social science/fine arts faculty, the difference is not sufficiently strong to claim striking distinctions. Contrary to the conflict of interest and conflict of commitment scales, the conflict over internal equity scale suggests a consensus among academics that work with the private sector should have little effect on the distribution of workload within an institution. Respondents think that access to internal resources and faculty's responsibilities to students should be similar across all disciplines, whether faculty are working with industry or not.

Discussion of scaled measures. Analysis of the scaled measures provided important insights about areas in which faculty and administrators converge and diverge in their perspectives toward conflicts topics. Involved administrators took the strongest dissenting position of any group against suggestions that loyalty to a sponsoring company might supplant loyalty to academe and adherence to its values and norms. Yet they were also the most willing to expand opportunities to generate revenue through university-industry collaboration, opening the door for increased occasions in which conflict of commitment is likely to occur. Because business faculty and academics who interact with firms are more familiar with, and deeply entrenched in, the culture and ideology of industry, these findings suggest that individuals who are involved with for-profit firms share a perspective toward academic duties and commitment to their institution that accommodates and favors the interests of the commercial marketplace.

Because involved administrators were much more supportive of expanding revenue-generating opportunities through university-industry activity than were non-involved faculty, the indication is that this is an area of tension between the two groups. Faculty in the social sciences/fine arts are keenly aware of this tension, and they are the least supportive of financial gain through interaction with industry. Compared to both involved administrators and non-involved faculty, involved faculty were the most supportive toward adjusting their allocation of time and balancing their academic role in a manner that makes room for interaction with firms. Even though all faculty grapple with the numerous demands of their academic roles, involved faculty indicate they are more willing to relinquish their teaching and service duties than are their non-involved colleagues. On the one hand, this may indicate that increased time and effort are needed to sustain relationships with firms; on the other hand, it may reveal the increased ability of involved faculty to reduce less desirable academic efforts in favor of increased time and attention to more interesting, rewarding, and prestigious pursuits.

Although all faculty generally share similar views toward internal equity issues, these perspectives seem to be at odds with faculty views toward conflicts of commitment. The scaled measure on conflict of commitment suggests that faculty who participate in university-industry activities might prefer to teach less, whereas all faculty responding to conflict over internal equity issues indicate that university-industry activity should not substitute for teaching. These contradictions suggest that entrepreneurship norms are in flux, and the tensions over workload are as yet unresolved.

Though these scaled measures provide important insights into respondents' perspectives because they simplify and summarize complex constructs, the scaled measures do not shed light on particular areas where these tensions might emerge. Because we wanted to identify specific pressures that may be caused by university-industry collaboration, each individual statement was examined in an effort to identify concrete issues that may be the source of these tensions. By exploring the individual statements, we risk the possibility of calling a difference significant when further refinement of the statements and scaled measures used in this study may indicate that the difference is not really significant.[12] Given the dearth of information regarding the possible impact of university-industry collaboration on relationships between faculty and administrators within academe, we believe further probing of the individual statements may illuminate specific areas needing attention in future studies to better understand the ambiguities surrounding university-industry relationships.

Conflicts Topics - Individual Statements

Conflict of interest. An examination of differences in views toward the individual statements related to potential conflict of interest indicated that areas of contention center on intellectual property issues and market encroachment on the institution as a whole (Tables 5 & 6). Whereas tensions between faculty and administrators centered on intellectual property, tensions between involved and non-involved faculty emerged around several issues related to academics' involvement in activities associated with the commercial marketplace that are summarized as entrepreneurship. The potential struggles related to intellectual property and entrepreneurship are discussed in turn.

Intellectual property. The statements related to exclusive licenses and patents illuminated specific areas of tension between faculty and administrators (Table 5). All faculty, both involved and not, and across academic field groups, were less positive toward the notion that public institutions should grant exclusive licenses than were involved administrators (Tables 5 & 6, #6). Unlike faculty, involved administrators supported the statement that "exclusive licenses should be viewed as promoting mutual interest for both universities and industry to maximize the chance of making the discovery available to the public (see Table 5, item 7)."

In essence, the patents from which exclusive licenses are granted draw boundaries around certain bodies of knowledge and grant a single individual or organization the exclusive right to practice (i.e., to make, use or sell [Lechter & Lang, 1991]) that invention. This is usually done in exchange for royalties or regular payments to the discoverer and her or his institution, depending on the institution's policy and how the arrangement is negotiated. (In contrast, non-exclusive licenses are used to grant several individuals or organizations the right to practice the invention, usually for free or for smaller royalty sums). Faculty responses suggested that they approach licensing from a fairly traditional academic viewpoint, one which holds that information and knowledge created by faculty when using federal research funds should be placed in public domain, rather than be apportioned to particular individuals or companies (Bowie, 1994; Fairweather, 1988; Peters & Fusfeld, 1982). For faculty, it appears that the availability of information to numerous parties is critical and, in comparison, that returns on investment for specific pieces of intellectual property are less important. Public access to knowledge facilitates the creation of still more knowledge, thus it is valued more highly by faculty than are earnings. This view is distinct from that professed by involved administrators.

The implications of this perspective are unclear. It may be that administrators are seeking the higher revenue streams that may stem from exclusive licenses. Perhaps academic administrators believe corporations will not invest in innovations that are licensed non-exclusively, because firms are unlikely to recoup the related development costs through profits from product sales in areas where several firms are competing. Corporate and university CEOs often make the case that exclusive licenses create the competitive advantage needed to increase the likelihood that a product will reach the market and generate sufficient income to justify any investment in product development. Unlike faculty, who value knowledge that moves freely in professional and scientific circuits, involved administrators value knowledge-in-use and the products and profits that flow from such use.

However, the responses of involved faculty and those in science and engineering to the statement "Academics should hold patents" (Tables 5 & 6, #4) suggested that they, too, are interested in the revenue-generating potential of knowledge. Their agreement with this statement was much stronger than that of involved administrators, who held the least supportive view of any group toward academics owning patents. As stated previously, patents draw boundaries around knowledge. Patents assign ownership of knowledge to those who discover it for a period of seventeen years (Lechter & Lang, 1991). If the discovery is made by a faculty member, he or she may be named on the patent, but the university is likely to own it (Chew, 1992).

Again, the implications of this positive response from involved faculty are ambiguous. It may reflect the belief that patents are an alternative to faculty that fulfills both personal and academic objectives: the knowledge is placed in the public domain; at the same time, opportunities to generate revenue through licensing remain open (Campbell, 1995, 1997).

TABLE 5

Results of Analyses of Variance for the Effects of Faculty/Administrator Involvement on Individual COI Statements

				Scheffé Tests for Differences Between					
Conflict of Interest Statement	*df*	SS	*F*	Involved Faculty and Involved Administrators	Non-Involved Faculty and Involved Faculty	Non-Involved Administrators and Involved Faculty	Involved Administrators and Non-Involved Faculty	Non-Involved Faculty and Non-Involved Administrators	Involved Administrators and Non-Involved Administrators
1. University-industry collaborative activity should be considered part of the public service aspect of academics' responsibilities.	3	52.78	9.02***	4.63	3.93**	4.00	4.84***		**
2. Industry profit from collaborative research is in the public's interest.	3	41.47	9.98***	4.68	3.97***	4.47	4.81***		
3. University income from collaborative research is in the public's interest.	3	18.69	5.34***	5.03	4.60**	4.47*	5.01*		
4. Academics should hold patents.	3	35.81	5.69***	4.91***	4.56	4.53	4.15		
5. Universities should hold patents.	3	29.11	4.81***	4.58	4.27	4.85	5.03***		
6. Public institutions should grant exclusive licenses.	3	91.05	12.38***	3.69***	3.52	4.03	4.76***		
7. Exclusive licenses should be viewed as promoting mutual interest for both universities and industry to maximize the chance of making the discovery available to the public.	3	23.85	4.57***	4.25*	4.07	3.94	4.70**		**
8. Academic salaries should be market driven, even if science and engineering professors are paid more than liberal and fine arts professors.	3	98.69	13.68***	4.92	3.73***	4.12*	4.71***		
9. A university invests the institution's funds to start firms organized by faculty or former students.	3	39.00	5.84***	2.68	1.98***	2.62	2.80***		

TABLE 5 (*Continued*)

Conflict of Interest Statement	*df*	SS	*F*	Scheffé Tests for Differences Between: Involved Faculty and Involved Administrators	Non-Involved Faculty and Involved Faculty	Non-Involved Administrators and Involved Faculty	Involved Administrators and Non-Involved Faculty	Non-Involved Faculty and Non-Involved Administrators	Involved Administrators and Non-Involved Administrators
10. A university is involved financially with more than one firm within a specific research area.	3	18.26	2.99**	4.31	3.81*	4.09	4.36*		
11. An academic receives more than a third of the royalty from a specific patent while holding a position in the university.	3	24.73	4.03***	4.74	4.10***	4.50	4.54		
12. An academic receives more than a third of the profits from books s/he authored while holding a position in the university.	3	9.25	2.29	5.25	4.92	5.09	4.93		
13. A company retains partial ownership of all research it sponsors, including joint research with universities.	3	6.59	0.98	4.14	3.87	3.82	4.12		

Where the mean is for the first comparison group mentioned in the column header and
*$p \leq 0.10$; **$p \leq 0.05$; ***$p \leq 0.01$.

TABLE 6

Results of Analyses of Variance for the Effects of Academic Field Group on COI Statements

Conflict of Interest Statement	*df*	SS	*F*	Scheffé Tests for Differences Between					
				Social Science/ Fine Arts and Engineering/ Science	Business and Social Science/ Fine Arts	Administrators and Social Science/ Fine Arts	Engineering/ Science and Business	Engineering/ Science and Administrators	Business and Administrators
1. University-industry collaborative activity should be considered part of the public service aspect of academics' responsibilities.	3	7.89	1.27	4.22	4.62	4.56	4.38		
2. Industry profit from collaborative research is in the public's interest.	3	19.31	4.50***	4.06**	4.63**	4.61**	4.66		
3. University income from collaborative research is in the public's interest.	3	9.66	2.62**	4.61	5.08*	4.80	4.96*		
4. Academics should hold patents.	3	25.27	3.91***	4.55	4.78	4.25	4.85	**	
5. Universities should hold patents.	3	23.22	3.86***	4.19	4.61	4.90**	4.55		
6. Public institutions should grant exclusive licenses.	3	53.78	7.56***	3.46	3.85	4.49***	3.88	**	**
7. Exclusive licenses should be viewed as promoting mutual interest for both universities and industry to maximize the chance of making the discovery available to the public.	3	4.85	0.96	4.16	4.21	4.46	4.32		
8. Academic salaries should be market driven, even if science and engineering professors are paid more than liberal and fine arts professors.	3	192.6	30.40***	3.18***	5.13***	4.54***	5.08		
9. A university invests the institution's funds to start firms organized by faculty or former students.	3	14.72	2.11*	2.18	2.72	2.72	2.54		

TABLE 6 (*Continued*)

Conflict of Interest Statement	*df*	SS	*F*	Scheffé Tests for Differences Between					
				Social Science/ Fine Arts and Engineering/ Science	Business and Social Science/ Fine Arts	Administrators and Social Science/ Fine Arts	Engineering/ Science and Business	Engineering/ Science and Administrators	Business and Administrators
10. A university is involved financially with more than one firm within a specific research area.	3	4.36	0.69	3.96	4.18	4.21	4.27		
11. An academic receives more than a third of the royalty from a specific patent while holding a position in the university.	3	16.99	2.64**	4.13*	4.45	4.52	4.76		
12. An academic receives more than a third of the profits from books s/he authored while holding a position in the university.	3	7.83	1.67	4.87	5.24	4.90	5.10		
13. A company retains partial ownership of all research it sponsors, including joint research with universities.	3	14.54	2.24*	3.68	4.23	4.10	4.19		

Where the mean is for the first comparison group mentioned in the column header and
*$p \leq 0.10$; **$p \leq 0.05$; ***$p \leq 0.01$.

Faculty may see this as a viable mechanism to fulfill their academic obligation without giving up revenue-generating opportunities. Perhaps the pattern of response indicates that faculty who hold patents believe that they play a critical role in creating marketable discoveries owned by the university; without them, there would be no stream of external revenues from licenses and royalties to the university (Rhoades & Slaughter, 1991a, 1991b). In this case, the faculty member's contributions are viewed as being more substantial than the subsidies of the university, suggesting academics, not universities, are the rightful owners of patents. The non-supportive response of involved administrators suggested that they believe institutions provide substantial support—whether through equipment and laboratories, support services (e.g., procurement and travel related to grants/contracts), release time, legal assistance in patenting, or other technology transfer services that—enable faculty to make patentable discoveries, and, therefore, the institution should have the greatest claim on patents.

Despite court cases and state and federal statutes that confer ownership of faculty inventions to universities, tensions related to intellectual property are not simple and clear. Faculty are professionals whose discretionary time is usually dedicated to research. They may use their research time to work on commercial research, basic research, or scholarship that does not generate external revenues from grants and contracts. In other words, faculty have a good deal of control over whether their discretionary time is devoted to work on patentable discoveries. Faculty may also use their discretionary time for consulting. Traditionally, faculty are allowed one day a week, or approximately 20% of their time, to consult. As consultants, faculty can engage in commercial research activity that by-passes the university altogether. Conceivably, they could use their expertise in such a way that intellectual property could be claimed by the corporation for which they consult (or by the individual inventor) rather than by the university that employs them.

Professionals' control over discretionary time gives faculty some leverage in dealing with university administrators regarding patent ownership. Even though universities own the patents awarded to faculty, faculty are usually able to negotiate with administrators for a percentage of the returns from royalties or licenses. The contradictory views expressed by faculty and administrators with regard to the statement "Academics should hold patents" underlines the struggle for control over this aspect of professional life.

Although involved faculty and administrators disagree on whether or not faculty should hold patents, both groups believe that universities should hold patents and that financial gains should be made from these discoveries. Unlike non-involved administrators and faculty, those actively engaged in university-industry relations support academe's integration with the market. What they disagree on is which group—faculty or administrators—should have the determining voice in shaping relations with external organizations and control over revenues from discovery.

Entrepreneurship. Responses to four additional items related to conflicts of interest, dealing with faculty's efforts to expand university activities to include some that were previously limited to the commercial nexus, suggested that involved and non-involved faculty held significantly different views toward rewards within the university and public service. The deepest chasm between involved and non-involved faculty was evident in responses to the statement "Academic salaries should be market driven, even if science and engineering professors are paid more than liberal and fine arts professors" (Table 5, #8). This rift is strongly emphasized by social sciences/fine arts faculty (Table 6, #8). Non-involved faculty and social sciences/fine arts faculty were significantly less supportive of market-driven salaries than were the other groups. Substantively, responses were more disparate than for any other question, with high F values and average responses separated by more than 1.5 points on the Likert scale. In other words, faculty who are able to move closer to the market believe they should receive higher remuneration, as do administrators, whereas faculty who are less able to connect with the market do not share this belief. It is clear that non-involved and social sciences/fine arts faculty do not believe market-related factors are relevant to notions of equity in salary, and this will continue to be a source of tension between those who interact with the for-profit sector and those who do not.

In terms of public service, non-involved administrators joined with non-involved faculty in showing less support for the notion that university-industry collaborative activity should be considered part of the public service aspect of academics' responsibilities compared with involved academics (Table 5, #1). Non-involved faculty, who are presumed to hold views more closely tied to traditional academic conventions and norms, were much less likely to characterize market dynamics as serving the public interest than their involved colleagues. This was evident in perspectives toward the statements "Industry profit from collaborative research in the public's interest" (Table 5, #2) and "University income from collaborative research is in the public's interest" (Table 5, #3), neither of which they strongly supported. Again, social sciences/fine arts faculty emphatically reiterated this perspective (Table 6, #2). In contrast, involved administrators and involved faculty were like-minded in characterization of the public interest. The implications of this response may be twofold: first, involved academics may be revising their definition of "the public" to focus primarily on industry (as opposed to the community as a whole), and second, they may be conceptualizing public service to include collaborative relationships with industry that generate income (as opposed to traditional notions of sharing one's expertise with the university or community for free).

Generally, non-involved academics' responses reveal a pattern that resists commercial encroachment. Non-involved academics do not want salaries to be market driven, nor do they want public service to be redefined so that university-industry activity is included. Similarly, non-involved faculty are suspicious of statements that proclaim that the public interest is served by market activity, such as university or industrial profits from collaborative activity. The responses of social sciences/fine arts faculty indicate they recognize that increasing encroachment of the market has the potential to divide faculty and fields into haves and have-nots, with faculty farthest from the market receiving the least remuneration in terms of both salary and outside activities at the same time that they are expected to carry the majority of the service workload, within both the institution and the community.

Conflict of commitment. Conflict of commitment differs from conflict of interest in that the point of tension on these items is over loyalty to the institution rather than over financial gain (Table 7 & 8). In a time when faculty are increasing ties to business and industry, the question of primary allegiance gains salience. For these statements it is important to note that none of the respondents, whether involved or non-involved, faculty or administrators, science/engineering, business, or social science/fine arts faculty, were supportive of academics strengthening their ties to business and industry at the expense of their commitment to the university. However, telling differences were found in the *degree* to which faculty and administrators were disturbed by diminished faculty commitment to their institution.

Faculty and administrators held significantly different views toward a statement about possible financial conflicts that is fairly standard in conflict of interest/commitment policy documents,[13] which are crafted by administrators, executives and bureaucrats, rather than faculty: "An academic fails to disclose to the university a substantial interest in any decision, contract, sale, purchase, or service related to her/his professional activities" (Table7, #14). Although all groups view this activity as a potential conflict of commitment, involved faculty indicated that they are much more supportive of an individual who fails to disclose financial interests than are their administrative and non-involved colleagues (Table 7, #1). Faculty in all three academic field groups do not want to disclose their financial interests in external entities to administrators, whereas administrators want faculty to do so (Table 8, #1). On the one hand, faculty may generally be resistant to increased administrative efforts to pry into matters that are seen as personal and private; on the other hand, their reluctance to disclose financial interest in external organizations may reflect a widespread faculty belief in their right to profit from their expertise, free from administrative intervention. Financial disclosure may be viewed as another bureaucratic effort to extract intellectual capital from professional employees; thus it is met with resistance. Faculty across field groups, perhaps spurred by broad social trends toward marketization, may recognize, and seek to protect, the commercial potential of their expertise across an array of increasingly knowledge intensive products (e.g., books, consulting, software, and course materials).

Involved faculty responded similarly to the statement "An academic prioritizes her/his obligations to a for-profit organization above her/his university-related activities" (Table 7, #20). Involved faculty were much more supportive of individuals who engage in this behavior than administrators and non-involved faculty. However, this is not a belief shared by faculty across all disciplines (Table 8, #20), suggesting that faculty involved in relationships with industry hold a unique view of commitment to the institution, one that may favor the interests of the commercial marketplace over those of academe.

It is important to point out that the disapproval rating for these two statements (Tables 7 & 8, #14, #20) was among the strongest for all statements in the survey. This indicates there is a solid consensus that profit motives should not displace established professional norms. However, for statements #14 and #20, involved faculty did not object to these activities as strongly as did involved administrators. This pattern repeats itself again for the statement "An academic fails to disclose patentable information to the university" (Table 7, #17). The indication is that faculty involved with industry have a tendency to differ from other faculty and administrators. They believe they owe the institution less than do other respondents, not an unexpected finding, given their involvement with industry and potential financial gains at stake.

When responding to items that did not couch conflict of commitment in the either-or terms that were used in items #14, #17, and #20 above, involved faculty's response is more ambiguous. Again, there were significant differences in the views of involved faculty and administrators when responding to the statement "An academic holds a management position in a company that is related to the academic's area of expertise in the university" (Table 7, #18). As is readily apparent from Table 7, the average responses of involved faculty fell toward the side of slight support (3.79), whereas involved administrators' responses were the least supportive of

TABLE 7

Results of Analyses of Variance for the Effects of Faculty/Administrator Involvement on Individual COC Statements

				Scheffé Tests for Differences Between					
Conflict of Commitment Statement	*df*	SS	*F*	Involved Faculty and Involved Administrators	Non-Involved Faculty and Involved Faculty	Non-Involved Administrators and Involved Faculty	Involved Administrators and Non-Involved Faculty	Non-Involved Faculty and Non-Involved Administrators	Involved Administrators and Non-Involved Administrators
14. An academic fails to disclose to the university a. substantial interest in any decision, contract, sale, purchase, or service related to her/his professional activities.	3	29.27	7.55***	1.94***	1.64	1.59	1.26		
15. An academic influences research results to ensure continued sales for a company.	3	5.61	2.35*	1.40	1.39	1.24	1.12		
16. An academic uses federal money to provide equipment or partial funding to an industry-sponsored activity without the federal agency's approval.	3	3.00	1.04	1.57	1.37	1.35	1.48		
17. An academic fails to disclose patentable information to the university.	3	33.59	5.23***	2.41***	2.17	2.24	1.67		
18. An academic holds a management position in a company that is related to the academic's area of expertise in the university.	3	47.08	5.46***	3.79***	3.32	3.29	2.95		
19. An academic engages in outside activities that require more than the usual university allotment of one day per week.	3	26.00	4.50***	2.71**	2.24*	2.44	2.12		
20. An academic prioritizes her/his obligations to a for-profit organization above her/his university-related activities.	3	21.03	5.88***	1.91***	1.53*	1.65	1.37		

TABLE 7 (*Continued*)

				Scheffé Tests for Differences Between					
Conflict of Commitment Statement	*df*	SS	*F*	Involved Faculty and Involved Administrators	Non-Involved Faculty and Involved Faculty	Non-Involved Administrators and Involved Faculty	Involved Administrators and Non-Involved Faculty	Non-Involved Faculty and Non-Involved Administrators	Involved Administrators and Non-Involved Administrators
21. A company representative knowingly uses the company's support to influence an academic's performance of research.	3	10.92	2.22*	2.10	1.97	1.55	1.82		
22. A company representative influences a cooperative university researcher to give primary attention to the industry-sponsored research and to reduce teaching and other university obligations.	3	24.73	5.17***	2.42	1.90**	1.79*	2.03		
23. A company representative prioritizes her/his obligations to a university above her/his company-related activities.	3	7.78	1.40	2.41	2.35	2.82	2.26		

Where the mean is for the first comparison group mentioned in the column header and
$^{*}p \leq 0.10$; $^{**}p \leq 0.05$; $^{***}p \leq 0.01$.

TABLE 8

Results of Analyses of Variance for the Effects of Academic Field Group on COC Statements

				Scheffé Tests for Differences Between					
Conflict of Commitment Statement	*df*	SS	*F*	Social Science/ Fine Arts and Engineering/ Science	Business and Social Science/ Fine Arts	Administrators and Social Science/ Fine Arts	Engineering/ Science and Business	Engineering/ Science and Administrators	Business and Administrators
14. An academic fails to disclose to the university a. substantial interest in any decision, contract, sale, purchase, or service related to her/his professional activities.	3	23.91	6.34***	1.80	1.99	1.34*	1.79	**	***
15. An academic influences research results to ensure continued sales for a company.	3	6.93	2.64**	1.32	1.32	1.19	1.53	*	
16. An academic uses federal money to provide equipment or partial funding to an industry-sponsored activity without the federal agency's approval.	3	1.20	0.39	1.48	1.61	1.45	1.49		
17. An academic fails to disclose patentable information to the university.	3	20.29	3.07**	2.40	2.20	1.87	2.38	*	
18. An academic holds a management position in a company that is related to the academic's area of expertise in the university,	3	44.38	5.19***	3.47	4.05	3.08	3.47		***
19. An academic engages in outside activities that require more than the usual university allotment of one day per week.	3	28.96	4.84***	2.62	2.96	2.26	2.28**		**
20. An academic prioritizes her/his obligations to a for-profit organization above her/his university-related activities.	3	13.34	3.32**	1.83	2.03	1.54	1.60		**

TABLE 8 (*Continued*)

				Scheffé Tests for Differences Between					
Conflict of Commitment Statement	*df*	SS	*F*	Social Science/ Fine Arts and Engineering/ Science	Business and Social Science/ Fine Arts	Administrators and Social Science/ Fine Arts	Engineering/ Science and Business	Engineering/ Science and Administrators	Business and Administrators
21. A company representative knowingly uses the company's support to influence an academic's performance of research.	3	10.60	1.96	2.01	2.00	1.82	2.25		
22. A company representative influences a cooperative university researcher to give primary attention to the industry-sponsored research and to reduce teaching and other university obligations.	3	8.62	1.71	2.21	2.43	2.01	2.19		
23. A company representative prioritizes her/his obligations to a university above her/his company-related activities.	3	10.86	1.97	2.56	2.59	2.39	2.15		

Where the mean is for the first comparison group mentioned in the column header and
$^{*}p \leq 0.10$; $^{**}p \leq 0.05$; $^{***}p \leq 0.01$.

this activity (2.95). This notion is also supported by business faculty (4.05), who held perspectives that were significantly different than those of administrators (Table 8, #18). Involved faculty and business faculty are more supportive of faculty participation in private sector work than others.

A similar pattern occurs with regard to the statement "An academic engages in outside activities that require more than the usual university allotment of one day per week" (Table 7, #19). Involved faculty are the most supportive of extending their relationships with industry to exceed the one day per week limitation. Faculty in business also favor more time for consulting, whereas administrators and scientists/engineers did not. These data may reflect the differences in opportunity structures for external activities across academic fields. Scientists and engineers frequently work on industry-related projects in the university setting, rather than through consulting arrangements, receiving research funds rather than consulting fees. In contrast, faculty in business are more likely to consult and, hence, push to extend their own flexibility.

The pattern of response to the statement "A company representative influences a cooperative university researcher to give primary attention to the industry-sponsored research and to reduce teaching and other university obligations" (Table 7, #22) provides further evidence that faculty are seeking ways to preserve autonomy and control over their professional activities. Involved faculty are more willing than non-involved faculty and administrators to prioritize industry-sponsored research over academic duties. Again, this view is not shared by faculty across all field groups, suggesting that faculty involved in close research partnerships with firms are unique in their willingness to sustain the relationship by diminishing university obligations.

When the responses of involved faculty to items in Tables 7 & 8 (conflict of commitment) are contrasted with those of administrators in Tables 5 & 6 (conflict of interest), an overall pattern emerges in which faculty are more supportive of statements that increase individual professors' opportunities to interact with the private sector and take profits based on their research, whereas administrators are more supportive of those external activities about which they are more likely to make decisions (e.g., granting exclusive licenses and investing university funds in spin-offs, Table 5, #6, #9). These variations in responses suggest that university-industry activity is contested terrain, where faculty and administrators are jostling for power and jurisdiction.

In differing from administrators and non-involved faculty in their attitudes toward the behaviors suggested by potential conflict of commitment statements, involved faculty may be trying to protect their intellectual property and consulting rights, not only for financial reasons, as discussed in the conflict of interest section, but as professional rights that sustain their autonomy. The obligation to disclose interests (Table 7, #14) and patentable information (Table 7, #17), significantly curtails faculty's ability to operate outside the purview of the employing institution. Generally, putting the employing institution first (Table 7, #20) constrains faculty opportunities in the private sector. Further, specifically prohibiting time spent on outside activity (Table 7, #19) and the holding of management positions in firms (Table 7, #18) limits faculty's opportunity to participate fully in start-up and spin-off companies. Although faculty, by definition, are *not* independent professionals, they have always struggled to be more than "mere employees." In a very real sense, faculty who are unable to exercise these right are more like professional employees than independent professionals.

Administrators are very likely to see faculty attempts to exercise autonomy from a different perspective. Whereas faculty see themselves as seeking to redefine academic responsibilities in a manner that provides flexibility and autonomy when working with an industrial sponsor, administrators see themselves as compelled to enact policies that require academics to recognize their institution as a player and partner in collaborative activities (e.g., disclosure of financial interests and patentable discoveries, Tables 7 & 8, #14 & #17). Increased university-industry activity may push administrators toward regarding faculty as professional employees whose autonomy should be controlled so that their first loyalty is to the university. The actions of both groups signify efforts to control and shape university-industry relationships in a manner that provides each group with increased authority, prestige, and resources.

Although there are significant differences by academic field group, the distinctive cultures of field groups are possibly being undermined by market opportunities. Faculty across all field groups do not want to disclose information about their financial involvement. Faculty in fields with market opportunities are less likely to adhere to traditional norms around conflict of commitment than others and are supportive of changes in practice that benefit opportunity structures in their specific field group. And, as the scaled measures suggest, involvement in relationships with firms emerges as an important characteristic that offers insight not evident in responses aggregated by academic field groups. Overall, responses point to tension between involved faculty and administrators around issues of autonomy and resources.

Conflict over internal equity. Questions that dealt with conflict over internal equity addressed issues about internal work load policies, such as whether non-involved faculty should absorb the teaching and public service responsibilities of involved faculty (see Tables 9 & 10). No

TABLE 9

Results of Analyses of Variance for the Effects of Faculty/Administrator Involvement on Individual CIE Statements

				Scheffé Tests for Differences Between					
Conflict Over Internal Equity Statement	*df*	SS	*F*	Involved Faculty and Involved Administrators	Non-Involved Faculty and Involved Faculty	Non-Involved Administrators and Involved Faculty	Involved Administrators and Non-Involved Faculty	Non-Involved Faculty and Non-Involved Administrators	Involved Administrators and Non-Involved Administrators
24. Academic units such as science, engineering, and medicine would not be able to conduct significant research without some form of industry sponsorship.	3	25.75	3.48**	4.10	3.64	3.35*	4.05		
25. Company representatives involved in university-industry collaborative activities should be held less accountable to the profitability of the firm than individual not involved.	3	10.17	1.93	3.33	3.50	3.24	3.03		
26. Company departments whose employees are involved in university-industry collaborative activities should receive larger budget increases from the firm than departments that are not involved in university-industry activities.	3	5.64	1.27	3.29	3.00	3.30	3.13		
27. When selecting students to work on university-industry collaborative activities, academics should give primary consideration to the students' ability to hold the study confidential when necessary.	3	4.43	0.64	3.23	3.49	3.35	3.32		
28. Other members of an academic department should absorb most of an industry-sponsored academic's *teaching* responsibilities.	3	8.63	1.85	2.36	2.01	2.06	2.25		

TABLE 9 (*Continued*)

				Scheffé Tests for Differences Between					
Conflict Over Internal Equity Statement	*df*	SS	*F*	Involved Faculty and Involved Administrators	Non-Involved Faculty and Involved Faculty	Non-Involved Administrators and Involved Faculty	Involved Administrators and Non-Involved Faculty	Non-Involved Faculty and Non-Involved Administrators	Involved Administrators and Non-Involved Administrators
29. Other members of an academic department should absorb most of an industry-sponsored academic's *public service* responsibilities that are not related to interaction with the sponsoring firm	3	3.11	0.63	2.42	2.30	2.21	2.50		
30. Academics involved in university-industry collaborative activities should spend less time with students who are not involved in the project.	3	11.01	2.28*	2.67	2.46	2.21	2.32		
31. Academics should be able to reduce their course loads as a result of high productivity.	3	3.30	0.49	4.06	3.85	3.91	4.05		
32. A department does not admit a foreign student to a program because s/he may take sponsored research knowledge to her/his home country upon graduation.	3	4.32	0.56	2.66	2.61	2.50	2.86		

Where the mean is for the first comparison group mentioned in the column header and
$^{*}p \leq 0.10$; $^{**}p \leq 0.05$; $^{***}p \leq 0.01$.

TABLE 10

Results of Analyses of Variance for the Effects of Academic Field Group on CIE Statements

				Scheffé Tests for Differences Between					
Conflict Over Internal Equity Statement	*df*	SS	*F*	Social Science/ Fine Arts and Engineering/ Science	Business and Social Science/ Fine Arts	Administrators and Social Science/ Fine Arts	Engineering/ Science and Business	Engineering/ Science and Administrators	Business and Administrators
24. Academic units such as science, engineering, and medicine would not be able to conduct significant research without some form of industry sponsorship.	3	7.91	1.04	3.76	4.20	3.90	4.02		
25. Company representatives involved in university-industry collaborative activities should be held less accountable to the profitability of the firm than individual not involved.	3	8.20	1.56	3.27	3.14	3.11	3.46		
26. Company departments whose employees are involved in university-industry collaborative activities should receive larger budget increases from the firm than departments that are not involved in university-industry activities.	3	5.17	1.21	3.06	3.04	3.23	3.33		
27. When selecting students to work on university-industry collaborative activities, academics should give primary consideration to the students' ability to hold the study confidential when necessary.	3	17.40	2.60	3.40	3.79	3.41	3.17*		
28. Other members of an academic department should absorb most of an industry-sponsored academic's *teaching* responsibilities.	3	9.69	1.97	2.04	2.55	2.28	2.30		

TABLE 10 (*Continued*)

				Scheffé Tests for Differences Between					
Conflict Over Internal Equity Statement	*df*	SS	*F*	Social Science/ Fine Arts and Engineering/ Science	Business and Social Science/ Fine Arts	Administrators and Social Science/ Fine Arts	Engineering/ Science and Business	Engineering/ Science and Administrators	Business and Administrators
29. Other members of an academic department should absorb most of an industry-sponsored academic's *public service* responsibilities that are not related to interaction with the sponsoring firm	3	7.89	1.57	2.34	2.74	2.45	2.37		
30. Academics involved in university-industry collaborative activities should spend less time with students who are not involved in the project.	3	20.97	4.40***	2.54	2.97	2.34	2.41**		***
31. Academics should be able to reduce their course loads as a result of high productivity.	3	20.42	3.21**	3.68	4.42**	4.07	4.05		
32. A department does not admit a foreign student to a program because s/he may take sponsored research knowledge to her/his home country upon graduation.	3	5.83	0.76	2.85	2.77	2.71	2.51		

Where the mean is for the first comparison group mentioned in the column header and
*$p \leq 0.10$; **$p \leq 0.05$; ***$p \leq 0.01$.

substantively significant differences were found among any of the groups of faculty and administrators, involved or not involved, for the individual statements falling under conflict over internal equity (Table 9). It is interesting to note that the statement "Academics should be able to reduce their course loads as a result of high productivity" (Table 9, #31) received the strongest support from involved faculty and involved administrators of any statement in the conflict over internal equity category, with responses averaging 4.06. Business faculty were also the most supportive of reduced course loads (Table 10, #31), however, it is unclear how the respondents conceptualized "high productivity." In addition, business faculty were more willing to decrease their interaction with students who are not involved in their industry-related projects (Table 10, #30) than science/engineering faculty and administrators. If business faculty perspectives reflect the culture of industry, their responses may suggest an increased tendency for those who interact with the for-profit sector to seek ways to reduce their course loads and interact with students only within the context of their industry-related projects. Although our data cannot confirm the possible emergence of this trend, it is an area worthy of investigation in the future. As noted in the aggregate treatment of conflict over internal equity, for the most part, all groups in this study affirm that work with the private sector should have little effect on the distribution of work within an institution, on access to internal resources, or on faculty responsibility to students.

This pattern of response indicates that all respondents believe students should be treated the same across departments, whether the faculty member is involved in collaborative activity or not. If involved faculty reduce their teaching and service responsibilities, the pattern of response suggests that no one believes the additional workload should be absorbed by non-involved faculty in the same department. The implication is striking, and, given responses to other questions, probably unrealistic: Work with private firms should not interfere with traditional academic duties. Given that relationships with industry representatives take substantial amounts of time to establish and nurture, it hardly seems feasible that involved academics can sustain the same level of commitment to academe as those not involved with industry. The pattern of response to the items in Table 9, when contrasted to the responses to items in Tables 5 and 7, highlights the unresolved contradictions that permeate university-industry relations. Even as groups begin to differentiate themselves on the basis of involvement or non-involvement, they simultaneously adhere to beliefs about academic workloads that ignore the commitments made by faculty engaged with the private sector.

Implications and Conclusion

Overall, analysis of the several groups' responses to the survey points to two sets of tensions that stem from increased university-industry activity primarily centering on autonomy, resources, and flexibility to capture financial gain. The first is between involved faculty and involved administrators, the second between involved faculty and non-involved faculty. The manner in which these tensions are resolved will have important implications for the organization of faculty work, students' experience with the educational system, and administrators' efforts to respond to pressures from federal and state regulators. The numerous ambiguities discovered suggest that these issues are unresolved and perhaps volatile.

The three hypotheses were confirmed, although to different degrees. The hypothesis that faculty and administrators will hold different views toward potential conflicts, particularly on issues related to control over relationships with industry, was confirmed. The aggregate measures for conflict of interest and commitment, as well as several individual statements, provided strong evidence to support the assertion that faculty are seeking control over their collaborative activity. Involved faculty departed from administrators with regard to intellectual property issues and loyalty to the institution. Faculty favored ways to retain their autonomy, whereas administrators were supportive of greater oversight. Involved faculty also differed from non-involved faculty in their notions about public service and activity that is in the public's interest. Faculty who work with industry are increasingly seeking ways to couch these efforts within existing academic duties. They also seem to be moving toward an ideology that sees anything that is beneficial to industry as beneficial to society as a whole. In other words, involved faculty are likely to agree with "Engine" Charlie Wilson that "what is good for General Motors is good for America."

Similarly, the data provide evidence that administrators are seeking ways to maintain control over faculty's participation in university-industry relationships. Administrators are less supportive of academics holding patents than are involved faculty. Involved administrators are the most disapproving toward statements representing a failure to follow standard conflict of interest/commitment policies and failure to disclose discoveries that might be patentable. This suggests that they view policies as one of the ways in which they can influence faculty to keep the interests of the institution in mind. By setting limits on what faculty can and cannot do, by monitoring faculty's financial dealings, and by specifying disclosure and patent procedures, administrators are curtailing faculty autonomy and controlling faculty's interaction with industry.

The second hypothesis was that faculty and administrators involved in university-industry relationships would be more willing to expand that activity than those not involved. The scaled measure for conflict of interest provided evidence that involved faculty are more enthusiastic about engaging in revenue-generating opportunities than are non-involved faculty. Social science/fine arts faculty are the least supportive of financial gains related to the market. When examining the individual statements, although no survey items directly endorsed expansion, several statements implied support for expansion. Involved faculty and administrators differed from those not involved with regard to intellectual property, with administrators supporting the granting of exclusive licenses and university ownership of patents, whereas science/engineering faculty believe academics should hold patents. Involved faculty saw universities and industry benefiting from collaborative work, a perception that lays the groundwork for expansion, whereas non-involved faculty held significantly less supportive views toward this activity.

The last hypothesis stated that faculty not involved in university-industry activity would be less supportive of inequities across disciplines that might arise out of collaborative activity than would their involved peers. Although non-involved faculty support collaboration with industry, our findings indicate that they are less supportive of the specific repercussions that might arise from these relationships. Non-involved faculty were the least supportive of academic salaries being market driven, a belief that was emphatically confirmed by social science/fine arts faculty. Those who were not close to the marketplace held to traditional academic ideals, such as involvement in public service activities that benefit more than one firm or industry; they were the least supportive of university investment in entrepreneurial activities, particularly the funding of spin-off firms. Responses to these individual statements suggest that non-involved faculty are less supportive of collaboration with industry than any other group. They seem to recognize that university resources are becoming increasingly scarce, and they may not support the distribution of funds to anything other that the three traditional academic activities: teaching, research, and service.

Heightened resource dependence creates conditions of increased organizational turbulence that destabilize patterns of organizational work. Given the institutions' need to maintain revenues, greater emphasis is placed on university-industry activity. As process and market theories of professionalization predict, commercial markets come to be viewed as prestigious avenues by which involved faculty can gain autonomy and control over expanded professional rights and privileges. Specifically, faculty try to retain and expand control over allocation of discretionary time, income streams, and intellectual property. Because these areas are central to relations with external entities and new revenues, administrators also seek greater control over these areas of faculty work. These industry relationships introduce unique considerations and differences in perspective that are not readily apparent when the distinctive academic disciplines are the sole consideration. As the commercialization of academic knowledge becomes more prevalent, involvement with the for-profit sector provides increasingly salient insight into academics' perspectives.

The greatest discord between faculty and administrators was found in the issues surrounding conflict of commitment. The underlying theme is that faculty want to keep their options open and resist affirming loyalty to the institution at the expense of autonomy. Administrators, as suggested by their response to items of interest, seek to expand the purview of the institution with regard to negotiations over faculty's external involvement. Involved faculty seem to value their ties with industry and to want to use them to increase their autonomy, income, and prestige. Their efforts are aimed at being more like independent professionals and less like mere employees. In contrast, involved administrators seem to want to treat involved faculty more like scientists, engineers, and other professionals employed in industry. These administrators seem to want greater control over faculty discretionary time, over income from external activity, and over institutional ownership of faculty discoveries. When scientists, engineers, and other professionals work for businesses, they lose control over these areas of work, which belong to, or are at the disposal of, the company.

Because faculty became involved in graduate education in the last quarter of the nineteenth century, they have struggled to establish their professional status and to be more than employees. The struggle was prolonged and bitter and required intensive organizational efforts from faculty through their learned associations and organizations, such as the American Association of University Professors (Larson, 1977; Metzger, 1987; Silva & Slaughter, 1984). Faculty rights to such activities as consulting, ownership of intellectual property, as well as the right to conduct any research they choose, were never formally recognized by the courts and remain tenuous. Increased university-industry activity brings the struggle to retain these rights and privileges to the fore once again. Given that the stakes are raised as academic knowledge becomes fungible, there are no guarantees that faculty will be able to expand professional claims with regard to these activities.

The scholarly literature that addresses academic administrators centers on leadership, which invariably treats these institutional managers as individuals. There is a paucity of theory and data on academic administrators as a collectivity, so little is known about how their interest will play out across institutions on issues such as university-industry activity. Some evidence suggests that, in the 1980s, academic administrators' careers diverged from faculty's. After holding a deanship, academic administrators rarely returned to faculty ranks. Instead, they made horizontal moves to deanships at other institutions or vertical moves toward presidencies (Cohen & March, 1986; Slaughter, 1990). Again in the 1980s, prestigious heads of research institutions ceased to refer to themselves as presidents of educational institutions and instead saw themselves as CEOs of knowledge-based enterprises (Slaughter, 1993). Although much more work on the careers and collective conscious of academic administrators needs to be done, it is possible that they are increasingly following career paths that are very different than those of faculty. In addition, the more administrators are pressured from external constituents to control the actions of their organizational members (e.g., U.S. Public Health Service's 1996 report, *Integrity and Misconduct in Research*) and the more federal court decisions begin to reflect an ideology that views universities as organizations in which administrators, like managers, are accountable for their employees' actions, then the more likely it is that administrators will view business executives as their appropriate reference group. If so, they may seek, or be required, to treat their professional employees more like business leaders treat members of their organizations.

The data consistently indicated that involvement with industry calls for a re-examination of areas of professional activity, such as consulting with for-profit firms, pursuit of intellectual property, and time spent on traditional academic duties. Even though non-involved faculty do not engage in industry-related activities, they too will be subject to closer scrutiny and increased regulation (Slaughter & Rhoades, 1993). They are, perhaps understandably, suspicious of involved faculty's and administrators' claims that university-industry activity should be increased. For example, copyrights on books that serve an instructional purpose might be defined as intellectual property and become subject to the university's ownership agreements, causing non-involved faculty to lose one of the few external revenue streams available to them.

Although the attitudes of involved and non-involved faculty toward university-industry partnerships are somewhat contradictory, tensions between the two groups seem to be highest around salary, work-load, and public service. If university industry activity is strongly promoted, disparities between involved and non-involved faculty salaries are likely to continue to grow, involved faculty are likely to devote more time to university-industry activity, perhaps reluctantly leaving a greater and greater share of teaching to temporary faculty or lectures. This may create a cycle in which involved faculty continue to augment their publication volume, autonomy, income, and prestige, whereas non-involved faculty become occupied with traditional academic duties (e.g., teaching and attention to students) that reduce the time available for research and publication. Once begun, this cycle will serve to reproduce and reinforce non-involved faculty's diminished status by progressively reducing their opportunities to gain autonomy, income, and prestige. Increased interaction with industry may also contribute to a trend in which public service becomes service for fee rather than for free, and only the service that generates external revenue may be encouraged. If such differentiation between involved and non-involved faculty continues, faculty members are likely to lose their identity as a collegium, undermining collective strength and further eroding their professional status.

Although the hypotheses were partially confirmed, respondents' views were often contradictory. The relatively high degree of ambiguity captured in the various groups' responses probably indicates that attitudes toward the behavior items described in the survey are in a state of flux and change, making it ripe for policy intervention that may determine the shape and form that higher education may take in the future.

Notes

[1] For this study, administrators included provosts, vice presidents for research, directors of offices of technology transfer, and deans; department heads were considered faculty members.

[2] Not all commercial dollars are valued as highly as research dollars. For example, funding for applied work and fee for service monies are not as prestigious as is money received for new high technology.

[3] It is important to point out that, although the prevailing belief is that industry funding will fill the void left by a decline in federal support, many academics, including the authors, believe that this will never actually take place. History has shown that the flow of funds from industry to universities has remained at a fairly constant, relatively low level. Also, industry would have to more than double its current contribution if it were to completely fill the gap left by federal agencies; this is a highly unlikely probability.

[4] It should be noted that private universities, proprietary schools, and community colleges were not included in this study. Private universities are often established for an expressed purpose (e. g., interaction with firms and economic development as explicit goals, religious purposes, or to support the causes of particular benefactors), thus complicating the potential responses of individuals from these institutions. To keep the focus on universities supported by taxpayer dollars expected to uphold the public's trust and to be very clear in this initial exploration of potential conflicts issues, only public institutions were included in this study.

[5] Classifications issued by the Carnegie Foundation for the Advancement of Teaching (1987) were utilized. These Categories range from Research I Universities to Liberal Arts Colleges. We were able to select twelve public institutions from all categories ex-

cept two. Only three (3) public institutions were categorized as Liberal Arts I & II. All three of these institutions were targeted for participation.

[6] Some fill-in-the-blank and open-ended questions were also employed, but these questions were not discussed in this article.

[7] As is customary with mailed surveys, some questionnaires were returned due to insufficient addresses, retirement, death, or elimination of the position due to reorganization. These organizations were contacted in an effort to learn the new address or to identify the person currently holding the position. However, in a surprisingly large number of cases, the person had left the organization and the position had been subsequently eliminated. Every effort was made to find appropriate substitute representatives, but a replacement could not be identified in some cases. Because these targeted respondents never had an opportunity to participate in the study, they were designated as ineligible to respond.

[8] Evaluating responses at one point in time compared with responses received at a later point in time is a widely utilized method to check for potential errors in measurement (Rossi, Wright, & Anderson, 1989). To ensure that the results were reliable, wave one and wave two respondents were compared using cross tabulation and chi-squared statistics for a number of key characteristics, including involvement in collaborative activity income level, age range, position in the organization, and field of specialization. No substantive differences were found, thus verifying that the resulting sample was representative of the targeted population and was reliable. These analyses also demonstrated that further solicitation of responses would not yield a different set of responses.

[9] Academics were identified as being "involved" in collaborative relationships, called "collaborators," or considered interacting with firms if they checked one or more of the following choices:

How Collaboration Was Defined

I am currently involved in activities related to the following (*please check all that apply*):

_____ Consulting with a company.
_____ Contractual activities with a company.
_____ Collaborative research activity with a company.
_____ Negotiations regarding the licensing of university discoveries.
_____ Economic development.
_____ Industrial advisory board(s).
_____ Industrial affiliates program(s).
_____ University-Industry research center(s).
_____ Incubator(s).
_____ Industrial park(s).
_____ University-based institutes(s).
_____ Joint ownership of facilities with a university.
_____ Researcher exchange programs between universities and industry.

[10] All assumptions for using ANOVA were met. To verify homogeneity of variance, The Levine Test was used.

[11] Because the previous study represented the first attempt to develop scales for potential conflicts and the literature frequently addressed a diverse array of potential conflicts issues in tandem, it was most appropriate to allow the statements to be somewhat correlated, rather than requiring them to be independent (in which case they would have been rotated orthogonally).

[12] The probability of committing Type I errors increases with each statistical test made. For this reason, scaled measures may provide a more accurate measure of the construct.

[13] This statement was taken from The University of Arizona's Interim Conflict of In-

terest/Commitment Policy (04/16/93). Similar notions are expressed in the conflict of interest/commitment policies of many institutions and are outlined in The Association of American Medical Colleges' *Guidelines for Dealing with Faculty Conflicts of Commitment and Conflicts of Interest in Research* (1990).

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Book Reviews

Universities and Their Leadership, edited by William G. Bowen
and Harold T. Shapiro. Princeton, NJ: Princeton University Press,
1998. 258 pp. $29.95.

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In March of 1996, the 250th anniversary of the founding of Princeton University (as the College of New Jersey), the campus leaders held a Conference on Higher Education, loosely devoted to the theme of the relation between research universities and contemporary society. The conference was amply supported by the Andrew Mellon Foundation, of which William Bowen, a former president of Princeton, is president, and he and the current Princeton president, Harold Shapiro, collected the ten papers presented to form this book.

Usually such books mainly contain prosaic essays, inclined more to congratulation than to searching analysis and scholarly muscle. This miscellany is not free of puffy cotton, but it also includes essays of steel. Several of the essays are outstanding.

The authors are academics, such as Martin Trow, Amy Gutmann, Oliver Fulton, and Daniel Kevles, and scholarly administrators, such as Frank Rhodes, Harold Shapiro, Hanna Gray, Henry Rosovsky, Frank Press, and Maxine Singer. The book is divided into four sections: The University Overall, The Presidency, The Faculty, and The Planning and Oversight of Science. The editors never explain why these four subjects were selected and others such as students, curriculum, finances, and the humanities were not. But the four topics chosen are reasonably central, and the writers strive to relate their essays to the conference theme. Incidentally, *Universities and Their Leadership* is an exceptionally well edited book, which seems less and less the case in recent compilations about higher education.

The one hundred and twenty or so American research universities, from Duke to Berkeley, have had a growing number of critics. Therefore it seems appropriate that the book begins with an essay by the former president of Cornell University, Frank Rhodes, dealing with these criticisms. After listing some of them, Rhodes chooses not to counter or deny them; instead, he notes that Americans must recognize that "universities themselves have undergone significant changes." He cites three of these changes as especially influential.

First is the increasing "inclusiveness" of the universities in the makeup of their students and in their academic programs. Rhodes points out that one third of Princeton's incoming class of 1998 was composed of minority and foreign students, and although Princeton became coeducational as recently as 1969, the undergraduate body is now 46 percent female. All the U.S. research universities, he says, have become more polymerous; "ivory towers they are no longer."

Second, professional and practical studies have proliferated and now tend to dominate the universities. Third, science has become ascendant, with the leading U.S. universities now housing many of the best scientists of our time. Professional schools too have become more science-oriented, and "the model of scientific knowledge—abstract, quantifiable, impersonal, and 'value neutral'—has been adopted uncritically by other fields."

Rhodes's article hiccups occasionally with bromides like, "We must decide what our priorities are," but he feels strongly that research universities should be more accountable to the public because "scholarship is a public trust."

Fittingly, Berkeley's Martin Trow follows with what is one of the finest explorations of accountability in higher education so far. Based on a recent study (Graham, Lyman, & Trow, 1995), he advocates an unconventional view of accountability.

Trow, a long-time defender of faculty prerogatives, transparently dislikes the increasing demands that universities be more accountable to external bodies. He believes, "Accountability to outsiders weakens the autonomy of institutions" and "can also be a threat to the freedom of professionals to manage their own time and define their own work." He also believes that "there is no lack of accountability by American colleges and universities to the larger community," considering the existence of accrediting agencies, federal regulations and audits, outside trustees, the media, state coordinating bodies, unions, student assessments, consumer guides to colleges, and more.

Trow prefers to see universities develop their own quality controls and measures of efficiency. "It is necessary that the institution subject itself and its units to serious and recurrent internal review with real teeth and real consequences." He proposes that regional and professional accrediting bodies replace their institutional reviews with "audits of the quality control procedures in place."

However, Trow's arguments are weakened by two elements. He is highly skeptical of all measurements of quality, and he fails to recognize that strong internal quality and effectiveness controls require a far more intrusive central management on campus than any research university faculty would likely accept and greater faculty self-criticism and attention to student needs than most professors at these elite institutions seem willing to extend.

Three of the next four essays, believe it or not, are about "moral leadership." Harold Shapiro looks back at four presidents of yesteryear—Wayland of Brown, Eliot of Harvard, Angell of Michigan, and Wilson of Princeton—and claims they each had a vision and the energy and courage to pursue it and a capacity to inspire others. Shapiro asserts, "It is my own view that the moral requirements of a contemporary university president are no less than in some previous age."

Henry Rosovsky, emeritus professor and former dean at Harvard, aided by doctoral candidate Inge-Lise Ameer, worries about the "professional conduct" of the faculty at the best universities. He thinks they are so committed to their research and pursuit of new knowledge that many no longer give much attention to teaching, advising students, the curriculum, and governing their university. "Most professors have little sense of social contract," he writes. He attributes their excessive absorption in research and publishing to two things: "competition" and "poor management."

Rosovsky describes American higher education as an intensely competitive enterprise, fighting for faculty, students, and funding. The coin of the marketplace is prestige, and among research universities prestige is largely judged on the basis of research awards and productivity, faculty reputation, and faculty prizes and important consultancies. So research university leaders scour the world for brilliant researchers and bright-star intellectuals. "Stars bring visibility and luster. They also bring special deals, special—in the sense of privileged—rules of conduct, and discord and jealousy." (*Profscam* is not quite as eccentric a book as its detractors allege.) Rosovsky claims the "star system" has "greatly increased the power of professors and given many of them immunity from institutional control."

Also, the behavior of research professors is getting worse, Rosovsky charges, because of "archaic and inefficient management practices" and by administrative cowardice, permissiveness, and "lack of will." He asks, can anything be done? and seems to answer, not much. But Rosovsky wonders if a short course on professional conduct should be required of all doctoral students, and he ends, bafflingly, with two case studies—the famous battle at Stanford over the curriculum in Western civilization and a faculty-student face-off at Russell University—as examples of faculty behavior.

Amy Gutmann, a politics professor at Princeton, argues even more forcefully for "high-quality courses in practical ethics in the curriculum," such as she has been offering to Princeton's undergraduates for more than a decade. Gutmann acknowledges that there is "no morally neutral ground" or one best set of ethics, but she says that "every university must take some stand here and now, provisionally and subject to change." Gutmann earnestly wants students and faculty to be more morally reflective.

But Hanna Gray, professor of history and president emeritus of the University of Chicago, is more chary. To her, administrative and moral leadership such as the presidential "giants" of higher education's past exuded is not possible is today's complex research conglomerates. Rather, university presidents should be enablers, working with others quietly, often invisibly, to help scholars get their work done. Modesty, faithfulness to academic values, and stealth are crucial, she maintains in her slightly droll and gossamer piece.

The most traditional scholarly essay in the book is Oliver Fulton's disquisition on the contemporary academic profession, a subject he has studied for more than twenty years. Fulton, a professor of higher education at Great Britain's Lancaster University, cogitates about whether there is an academic "profession" or not, especially now that higher education is a mass enterprise in the advanced industrial nations. Fulton looks at the topic from numerous points of view and kinds of empirical data.

On the one hand, he notes that many citizens regard all professors as professors, not as mathematicians, astronomers, or literature experts, and that many scholars still agree with the old Parsons-Platt view that college and university instructors constitute a separate profession with a common allegiance to "cognitive rationality" (1968, p. 497). Fulton observes that faculty are pretty much subject to similar working conditions and academic calendars, are trained through similar graduate school requirements, and usually feel an obligation, like doctors or the clergy, to serve others.

On the other hand, Fulton reminds us that Donald Light in his groundbreaking article (1974, p. 12) argued persuasively that "the academic profession does not exist." Rather, professors are comprised of three distinct occupational groups: a small minority of academics highly active in research, scholarship, and publication; numerous scholarly instructors who occasionally write articles, reviews, or books; and a majority of teachers of undergraduates. Fulton also notes that Burton Clark (1983) and others have found a steadily increasing fragmentation of the disciplines and a breakdown of collegiality as academic specialization has grown.

Moreover, faculty have ranks; lawyers and architects do not have full, associate, and assistant lawyers and architects. And Fulton's survey data reveal that there are national differences in the way countries treat and regard professors. Fulton's conclusion: "To claim that we are all one profession is plainly wrong; but to deny it altogether would be equally foolish."

The last three essays seem further removed from the proclaimed theme of the Princeton conference. They concern the federal government's role in supporting scientific research and development. Science historian Daniel Kevles of the California Institute of Technology scans the federal government's role in supporting science from 1890 to the present with his usual superb mix of historical detail and public policy issues. He recommends that university scientists reduce their concern about how much money academic science needs from the federal government and increase their emphasis on "socially purposeful scientific programs." Frank Press, geophysicist and former president of the National Academy of Sciences, proposes a new concept, "the federal science and technology budget," to look at "the real R&D budget," not the government's vaunted $70 billion one, of which more than half goes for defense, space, and industrial development. And Maxine Singer, biochemist and president of the Carnegie Institution in Washington, worries about "the problem of communicating science to the public."

Universities and Their Leadership is limited to examining the condition and obligations of the nation's relatively top-drawer research universities. But the increasingly concentrated gathering of star researchers, artists, and intellectuals at these institutions has prompted growing public concerns about universities' social obligations—to students, to the nation, and to moral leadership for society. In a gingerly manner, the book addresses some of these concerns.

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Harland G. Bloland

Creating CHEA

Building a New National Organization on Accrediting

Studies of organizations are conventionally concerned with already formed and functioning entities. This leads to a focus on problems about organizational goals, effectiveness, efficiency, and internal and external relations. There is a literature on *new* organizations that emphasizes the survival threats these entities face as they contend with more established rivals, try to become known and trusted, and attempt to coordinate their activities in the face of no history of internal interaction. There is a smaller literature that deals with institution creation, the act of putting together an organization where one does not exist. This study concerns the formation of such a new agency, a national organization concerned with accrediting.

In the period from 1993 to 1996, the higher education community worked to form a new national agency on accrediting and was successful in creating the Council for Higher Education Accreditation (CHEA). This new organization replaced the Council on Postsecondary accreditation (COPA), an entity that was in existence from 1975 through 1993. In this study I report on and analyze the actions and relationships among the major stakeholders in the creation of the new organization and provide a background and context within which the task of organization building took place. The article illustrates the precariousness and uncertainty involved in the task of organization creation in the rapidly changing political, social, and technical environment for higher education of the 1990s.

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Theory

To understand this organization-building process, theories of institutionalism and organization creation are brought to bear. When an organization is created, the founders want to institutionalize it, that is, to make certain the organization is stable and predictable with shared expectations and understandings. The founders seek to legitimate the new organization in the eyes of the stakeholders.

Theories of institutionalism are conventionally applied to already existing organizations. In fact, institutionalism is thought to be a part of the maturation of an organization, a stage after infancy (Miles & Randolph, 1980, p. 46), and not a part of the organizational creation process. The interest here is in the period before there is an organization. In this study, concepts of institutionalism are applied to the organization formation arena. As a result, emphasis is shifted from an emphasis on the organization itself and how it achieves institutionalism to a focus on the organization creators themselves and their attempts to influence the structure and purpose of the new organization and to capture and sustain legitimacy, both for themselves and for the proposed organization.

Institutional theory divides into two types, "old" and "new." Old and new institutionalism both emphasize the influence of environment on an organization, and both cast doubt upon the accuracy of rational actor models of organization (DiMaggio & Powell, 1991a, p. 12). Together, old and new institutionalism emphasize the symbolic, cultural aspects of organizations, and both guide the examination and interpretation of the events and actions of this study.

Old institutionalism. While sensitive to the need to align an organization's internal values with external cultural forces, old institutionalism perspectives also allow a prominent role for the formal exercise of power through legislation and regulations and give a central place to the activity of interest groups influencing government action through lobbying (Brint & Karabel, 1991; Selznick, 1996). Thus, old institutionalism accommodates analysis of the exercise and analysis of leadership and power.

The initial stages of forming the new agency on accrediting took place in an environment filled with suspicion and hostility toward accreditation. Congress, the federal Department of Education, and the states seemed bent on forcing compliance to new accreditation rules, and educators perceived that formal regulating environment as seriously endangering their autonomy. In that highly politicized atmosphere, educators sought to actively influence the environment to reduce the impact of menacing regulation. The founders of the new organization on accreditation were a part of this politicized resistance to regulation, but at the same time they sought to build an organization that would conform to their own notions of what the new national agency should look like.

Internally, the founders initially were raggedly divided into two interest groups with opposing ideas about what the new organization should do and look like. Their power struggles are a part of the story of organization building that fit well under the rubric of old institutional perspectives.

New institutionalism. The new institutional perspective points to ways organizations can survive and prosper through importing and internalizing approved (legitimate) structures, techniques, and values from the external environment, a process called "isomorphism" (DiMaggio & Powell, 1991b, p. 66). Isomorphism may have little to do with improving performance or efficiency, but it can have much to do with organizational survival and success. Isomorphic change involves strategies by leaders to obtain, maintain, and increase legitimacy through coercive isomorphism (conforming to external demands, often legal), mimetic isomorphism (copying admired models), and normative isomorphism (doing what is morally expected and appropriate as defined externally) (DiMaggio & Powell, 1991b, pp. 67–74).

In new institutional analysis, the concept of legitimacy is central. Legitimacy is a means by which a culture bestows support and approval to an institution for looking acceptable and acting appropriately, crucial assets in the educational world (Meyer & Scott, 1983, p. 201). How legitimacy is gained and defended is of the utmost importance for the survival and health of educational organizations. Achieving recognition as a legitimate entity vastly improves an organization's ability to command resources, stabilize its environment, and increase organizational autonomy. I argue here that the power and legitimacy of the founders were uncertain and contested, but that the level of legitimacy of the organization builders themselves was a central requirement for successful organization creation. This study emphasizes the search for and defense of the foundations of legitimacy for both the founders and the new organization on accreditation.

Old institutionalism explanations fit the early period of this case, when the accreditation organization founders were resisting the policies of encroaching government and struggling among themselves to define the nature of the new organization. New institutionalism explanations are helpful in analyzing the later period in organization building, when the threat of external coercion was reduced, and the founders were seeking to isomorphize mimetically with an environment that appeared less threatening. Thus, both new and old institutional approaches provide a basis for observing and interpreting the interplay of the power and isomorphic dynamics of organization founding.

Method

In this case study I make extensive use of observation and participation. Following a request for permission to observe the formation of a new organization on accrediting and upon a favorable vote by the Executive Committee of the National Policy Board on Institutional Accreditation (NPB), I was invited by NPB cochair Robert Atwell, then president of the American Council on Education (ACE) and cochair James Rogers, president of the Southern Association of Colleges and Schools (SACS), to attend meetings of the National Policy Board (NPB) as it deliberated and sought support for its task of making a national organization on accrediting. The NPB members included the heads of nine regional accrediting commissions and seven presidentially based associations. I attended all but one of the four major NPB meetings. Subsequently, I was extended an invitation by Stanley Ikenberry, past president of the University of Illinois and Chair of the Presidents Work Group on Accreditation (PWG), the successor to the NPB, to observe their meetings, all of which I attended. The membership of the PWG was composed of twenty-five college and university presidents and trustees. Later, with the organization's approval, I attended the early meetings of the board of the new national organization, the Council for Higher Education Accreditation (CHEA).

I took copious notes at the meetings and had access to tapes of the meetings, copies of the minutes of the proceedings, and correspondence among the participants and between participants and external commenters on the institution-building process. I drew relevant materials from national association publications and attended national association meetings, where issues surrounding the proposed new accrediting organization were discussed and debated. I attended a meeting of the directors of nine regional accrediting commissions in preparation for a National Policy Board (NPB) meeting. I conducted formal interviews with key members of the NPB, the PWG (identified above) and the CHEA board and held a number of informal conversational interviews with members of these groups over a four-year period.

To achieve credibility, I had conversations after meetings with staff members and participants, checking on their perceptions of what happened during the meeting. These perceptions were checked against each other and later against the official minutes. Observations were checked against interviews. These are classic triangulation methods.

I interviewed members of the National Policy Board (NPB) in their offices, and members of the Presidents Work Group (PWG) after the meetings tested my perceptions against theirs. Copies of drafts of this article were sent to ten members of the two organizations and to others involved in the process to get their reactions. These member checks are the most important means for establishing credibility.

There is an audit trail of products from the meetings and from activities connected with the meetings—minutes, memos, letters, meeting agendas, notes, tapes, and transcripts. I possess a stack of referential adequacy materials approximately five feet thick. I held conversations with a number of noninvolved professional peers regarding the events and activities of the organization's creation and had at least one extended conversation regarding the creation of CHEA per week for five years with one president who was not involved in this organization building. I also had extended conversations with presidents at various presidential functions and meetings at DuPont circle over the five-year period.

I reviewed the history of accreditation through the literature and tracked the course of accreditation's travails as reported in the educational press and interpreted by educational leaders over the past decade and before. My research included an exploration of theoretical frames that would give coherence and explanatory power to the events and relationships that unfolded over the period of the study.

Uncertainties Confronting the Organization Founders

From the beginning there was broad consensus that the recognition and other accrediting functions that needed to be performed on the national level were going to be provided for in one way or another, but there was disagreement concerning the necessity to construct a new national organization to fulfill those purposes. Other possibilities discussed were that the federal or state governments could be totally responsible for recognition and oversight of accrediting bodies or colleges and universities, that the tasks of a national organization could be divided among a number of already existing organizations, that a national presence in accreditation could operate under the umbrella of the American Council on Education, or finally, that the already existing skeletal structure on accreditation, the Commission on Recognition of Postsecondary Accreditation (CORPA), could be sufficiently expanded to do the job.

If there was to be a national organization on accrediting, the location was uncertain. The traditional home of national organizations and CHEA's predecessors, the National Commission on Accrediting (NCA) and the Council on Postsecondary Accreditation (COPA), was Washington, but during the time that the new agency was being fashioned, there was virulent hostility toward anything emanating from inside the Washington beltway. Thus efforts were made to consider other locations. There was no consensus on the scope and range of the new organization's powers, governance and financial structures, membership, and functions. At the same time there was doubt that any new organization could have a sufficiently positive effect on the problems that accreditation was facing.

Accreditation

Part of the difficulty in creating a new national agency on accreditation is the nature and place of accreditation itself in the educational enterprise. Accreditation in higher education is a known and accepted practice and has some of what Suchman calls "cognitive" legitimacy (1995). That is, there is a long public history and a high level of awareness of accreditation's existence in education with a more or less taken-for-granted role as an accepted part of the educational landscape. Nevertheless, accreditation is generally not well understood by either educational practitioners or the public.

Accreditation is enmeshed in the deep, unresolved problems in higher education concerning accountability and quality and has undergone significant assaults upon its traditional purposes over the years, as interested parties, particularly the federal government, have asked accreditors to take on important and controversial new tasks. At the same time the important stakeholders have been anxious to limit the power of accreditation to make decisions.

Accreditation aims to preserve and enhance quality in higher education. It is a voluntary exercise in which an institution or program agrees to engage in a self-study operating within the guidelines of a recognized accrediting agency. An accreditation team often includes some combination of educators, practitioners, and staff members. The team is invited to examine the institution or specialized entity and to write a report on the institution's or the program's success in meeting its own goals and the guidelines of the accrediting entity. The institution or program responds to the report with the aim of either gaining or continuing accreditation.

The organization structure of accreditation in postsecondary education includes six accrediting associations covering six geographical regions of the United States. Each of the associations has one or more commissions that accredit colleges and universities. There is also a number of agencies, national in scale, that accredit professional programs that exist within postsecondary institutions. In addition, there are national agencies that accredit special purpose institutions. Beyond this, there has been a succession of national associations on accrediting that "recognized" accrediting agencies but did not do accrediting. These national associations on accrediting have included the Federation of Regional Accrediting Commissions of Higher Education (FRACHE), the National Commission on Accrediting (NCA), the Council on Postsecondary Accreditation (COPA), the Commission on Recognition of Postsecondary Accreditation (CORPA), and now the Council for Higher Education Accreditation (CHEA). Each in turn has acted loosely as a peak association for the other accrediting organizations with varying forms of participation. COPA had a nineteen-member board and three constituent assemblies that acted as a forum for debating issues and making recommendations to the board. The constituent assemblies were composed of institutional accrediting bodies, specialized accrediting bodies, and eight of the major Washington-based, higher education associations. Dues were paid by the accrediting bodies that COPA recognized and by the national higher education associations.

The successive associations overseeing accreditation and recognition (FRACHE, NCA, COPA, CORPA, CHEA) occupied a unique but often contested position in the accreditation world. In general, these organizations recognized regional and special and professional accrediting agencies, coordinated and mediated the activities of the accrediting agencies, and carried out research and educational functions. Their location in Washington, DC, provided the opportunity to represent accreditation for lobbying and public relations purposes.

Over the years, particularly since 1952 and especially in the 1990s, accreditation became more deeply enmeshed in a triangular relationship with the federal and state governments, a relationship that reduced accreditation's autonomy but added responsibilities and complicated its purposes and activities.

Although suffering from a long history of difficulties in higher education, accreditation seemed to be in an advanced state of distress by the 1990s, when COPA was the reigning national association on accrediting. Accreditation was confronting a series of conflicts and pressures: a rancorous debate on multicultural guidelines, increasing pressure by the federal government to use accreditation as a regulating device to reduce high default rates on federally guaranteed student loans, and progressive transfer of federal responsibilities to the states, which encouraged states and state governors to become more activist in all things educational, including accreditation.

The accrediting agencies and COPA were blamed for the high default rates on student loans and for not sufficiently cracking down on fly-by-night degree-granting institutions and non-degree trade schools. The regionals were faulted for instituting new diversity standards for accreditation that were resisted by many institutions of higher education.

COPA's Problems

But COPA itself was the scene of escalating internal dissension among the three major groups represented in the constituent assemblies: the regional accrediting commissions, the specialized accrediting agencies, and the Washington-based presidential associations. These three factions had quite different perspectives on a variety of COPA-related issues. The national associations, led by ACE, sought to curb excessive visits and demands and unwarranted proliferation of specialized accreditors. The regional accrediting commissions complained of paying too large a proportion of the COPA dues without a commensurate voice in COPA decision making. The regionals thought the specialized and professional agencies had too much power. The regionals opposed pressures to become regulatory agents for the federal government and argued that COPA's lobbying efforts were not sufficiently effective. At the same time, the regionals were leery of a stronger COPA, for such an organization might begin to regulate the accreditors. The specialized and professional accrediting agencies (e.g., American Association of Bible Colleges, American Bar Association, National League for Nursing) believed that the regional accreditors and presidential associations were ganging up on them. The non-degree trade schools felt particularly vulnerable, because within their varied membership was the largest number and percentage of institutions with the highest levels of student loan defaults. Their sensitivity was a realistic response. The regional accreditors and the Dupont Circle national associations were not happy because COPA's title and membership included "postsecondary" education and not just "higher" education, and this expanded definition resulted in having some COPA members considered marginal to the higher education enterprise.

In the midst of this maelstrom of differing and contested demands and desires, several major events occurred. Since 1952, only accredited institutions had been eligible to receive federal funds and loans. However, a September, 1991, House of Representatives version of the 1992 higher education reauthorization bill failed to include the regional accrediting agencies in this process (De Loughry, 1991, p. A29). This omission acted as a major wake-up call to the accrediting agencies and to the Dupont Circle presidential associations. Accreditation was finally retained as a requirement for eligibility to receive federal funds in the 1992 Higher Education Reauthorization Act, but in that bill Congress generated a new program that was to expand greatly the role of the states including stringent regulatory responsibilities. This new program required each state to create a State Postsecondary Review Entity (SPRE). Among other duties, the SPREs were to review institutions with default rates above the law's stated threshold and to determine if those institutions would continue to have institutional eligibility to participate in student aid programs. The accrediting agencies saw this as a direct attempt by Congress to either eliminate accrediting or to federalize accrediting organizations. Colleges and universities saw SPREs as a major intrusion in their internal affairs. Higher education institutions thought that COPA should have seen this coming, should have warned the regional accrediting agencies and the higher education community, and should have successfully lobbied to prevent such incursions on their autonomy and responsibilities.

In 1992 Bill Clinton was elected president and, for a period of time, worked with a Democratically controlled Congress. The Democratic Congress had a number of veteran legislators who considered themselves friends of higher education and who had been largely responsible, with the help of skillful lobbying by Dupont Circle presidential associations, for the success of higher education in protecting funding for student aid and other programs despite threatening cutbacks in the federal budget and of the problems associated with the federal debt. However, this friendly Congress began to be more critical in the face of constituents' views of the high cost of college tuition and other problems associated with higher education. Congress also began to react to the hostility the public was exhibiting toward anything that had to do with government, especially anything that seemed to have origins in Washington. The Congressional response was to require more stringent oversight of federal education funding.

Democratic administrations in the past had shown a willingness to regulate, and Clinton's administration continued the tradition. In the face of Congressional disenchantment with student loan default rates, some highly publicized misconduct cases among scientists in major research universities, and a growing sense that colleges and universities were too expensive, complacent, and inattentive to undergraduate teaching, the Department of Education began to move enthusiastically to further regulate colleges through the accrediting process. With the looming aggressive implementation of SPRE regulations sending shock waves through the higher education community and the accrediting agencies, COPA was blamed for not having anticipated the problems.

For several years the regional accrediting agencies had entertained the idea of pulling out of COPA and forming their own national association. Issues came to a head at a COPA meeting in San Francisco in the spring of 1993. The regional accrediting associations declared their dissatisfaction with the organization and threatened to withdraw. A resolution was proposed to terminate the organization by the end of 1993. A vote was taken by the board, and COPA was dissolved. For most college and university presidents, the demise of COPA had little impact. The then University of Illinois President Stanley Ikenberry called this, "a non-event" (Bloland, 1995b). However, for the presidential associations in Dupont Circle and for many of the accrediting agencies the dissolution was taken seriously, and there was quick agreement that no national presence in accreditation was intolerable. Something had to be done. Accrediting agencies still had to be recognized; accrediting still needed coordination and a voice in Washington.

Inventing Temporary Organizations at the National Level

Reacting to the death of COPA, the regional accrediting associations and the national associations held a series of meetings, separately and together, to determine a course of action. By the time the work of creating the new organization on accrediting was accomplished, three other new organizations had been invented and discarded: one to carry on the work of recognizing accrediting agencies, the Commission on Recognition of Postsecondary Accreditation (CORPA), and two in succession to create a new national organization on accrediting, the National Policy Board on Institutional Accreditation (NPB), and the Presidents Work Group (PWG).

Organization 1. The Commission on Recognition of Postsecondary Accreditation (CORPA). The regional accreditors and national associations believed that the most immediate pressing need was to provide an organizational instrument that would continue to recognize accrediting agencies. There had been some thought that the regional accrediting associations might organize their own national agency to do this. Instead, the decision was made to create the Commission on Recognition of Postsecondary Accreditation (CORPA), a small, temporary organization that would concentrate on the recognition function.

Organization 2. National Policy Board (NPB). Out of the meetings of the national presidential associations and the regional accreditors came the decision to form a group that would undertake the task of creating a new national agency on accreditation, a successor to COPA, but different and stronger.

Robert Atwell, president of the American Council on Education

(ACE), and James Rogers, president of the Southern Association of Colleges and Schools (SACS), brought together a group composed of the CEOs of the six major national presidential associations and the head of the Association of Governing Boards (AGB), the CEOs of eight regional accrediting commissions that deal with higher education, some college and university presidents, and a few college trustees. The group did not include representatives from the specialized and professional accrediting agencies, an omission that was to haunt the deliberations of the NPB during the whole of its existence.

This group began to meet regularly, formalizing their organization-creating activities by first inventing their own temporary, organizational instrument, called the National Policy Board on Institutional Accreditation (NPB). The NPB then met and deliberated in various cities, Tucson, Washington, DC, Phoenix, and Leesburg, VA, over the next two years, hammering out proposals that were intended to get the new organization on accrediting up and running. Consultants were hired, and the national associations and accrediting agencies contributed various staff people to aid in their activities.

Organization 3. Presidents Work Group (PWG). The Presidents Work Group was organized by the National Policy Board and consisted of twenty-four college and university presidents and one trustee. The PWG carried on the work of the National Policy Board and was successful in producing a national agency on accrediting, the Council on Higher Education Accreditation (CHEA).

The Work of the National Policy Board on Accreditation (NPB)

Despite very different and often conflicting views about the proposed new agency on accrediting, the NPB participants were united in their sense of urgency and the need to act. With the states and the federal government threatening to vastly increase oversight of higher education, the NPB saw a necessity to organize a national presence that would effectively lobby Congress and the administration, would recognize and legitimate accrediting agencies, would be persuasive in assuring the quality of accrediting organizations, would distance regional and specialized accrediting from nondegree-granting accrediting, would itself acquire the legitimacy that COPA lost, and would reaffirm the legitimacy of the whole accrediting process.

As the regional accreditors and national associations began to meet regularly, serious differences surfaced. The presidential associations sought a national organization that could assure that regional accreditors operated with national, common standards. The presidential associations with research-dominated universities wanted to be sure that a new organization on accrediting would have the power to curb the proliferation and demands of specialized and professional accrediting agencies. The regionals wanted very much to retain their autonomy and were leery of any proposed national organization that would threaten their independence within the regions. Regional accreditors were dead set against common, national accreditation standards. What kept the two groups together and working was the looming threat of government encroachment and the necessity of having a buffer to carry out the needed tasks at the national level.

The National Policy Board (NPB) Meeting in Tucson, January 26–28, 1994

The sixteen members of the NPB met for three days in Tucson. This was a working conference to identify the big issues in accreditation, to put forth a new vision for institutional accreditation, and to develop a plan of action.

Although wary of each other, the participants were optimistic about their chances for success, agreeing that there should be a successor to COPA, but that the new agency should not look like COPA. The new organization should reflect higher education's needs rather than those of postsecondary education.[1]

There should be a larger participatory role for college and university presidents. These leaders entered the process with confidence. The NPB members assumed that they had sufficient legitimacy to put together a new organization. In fact, the six major national presidential associations plus the Association of Governing Boards (AGB) went into the Tucson meetings with a fixed agenda, which immediately became a problem. The NPB was also pressured by events. COPA was dead. The federal government was pushing the regionals with regard to defaults and fly-by-night accrediting organizations. Presidents were disturbed by the diversity guidelines instituted by the higher education commissions of the Western Association of Schools and Colleges (WASC) and the Middle States Association of Colleges and Schools. Accreditation seemed generally to be in disarray.

The Tucson meeting was a moment when the whole question of accreditation might have been opened for thorough examination. There was some anticipation that the Tucson meeting might be an ideal occasion for identifying innovative ideas for reorganizing the whole accreditation system. To this end, six invited papers were presented that featured experienced outside experts who had thought deeply about accreditation's development over the previous decade. The six papers did illustrate a threshold of innovative thinking about accreditation and reflected the profound differences that divided stakeholders on the question of accreditation. Some of the papers took a dim view of accreditation generally, calling for changes that would essentially eviscerate most of the process for most institutions.

The participants in the NPB were men and women who were accustomed to moving with dispatch on questions of policy and who were impatient with endless debate. Though looking forward to decision making that would result in action, their changes would realistically lean toward incremental, not revolutionary changes.

In retrospect, the participants clearly did not truly grasp the difficulty of the task before them. That is, the NPB members assumed that their status and track record provided sufficient legitimacy to be able to count on college and university presidents, the U.S. Department of Education, the press, and Congress to support their efforts, or at least not to stand in the way of or question too strenuously their building of a new national organization on accrediting.

At the Tucson meeting the general outlines of a new national agency on accreditation were hotly debated: composition, powers, and responsibilities. No major conclusions were reached, but a committee was appointed to develop a proposal for a new organization, a tentative proposal intended to encourage further discussion.

This draft proposal, discussed by the NPB at a May 1994 meeting, brought to the surface a deep division between the national associations and the regional accrediting agencies. The Washington associations favored a strong, federal type of organization, national standards regionally implemented, with powerful sanctions and possible withdrawal of recognition. The regionals wanted a confederal structure with powerful regional accrediting organizations (Stewart, 1994). The result was a call for another proposal that would consider these and other options.

The National Policy Board (NPB) Meeting at the Barcelo Hotel, Washington, DC, September 8–9, 1994.

By the time of the Barcelo Hotel meetings, positions had hardened, and this was a time of tough, realistic negotiations (Bloland, 1994a). In consultation with the committee, consultant Billie Stewart presented two models that reflected the federal and confederal orientations of the participants, with options under each of the models. The models of the proposed new organization on accrediting reflected most of the divisions on issues that would plague the NPB deliberations for its entire existence: a strong or weak board, enough power to discipline accrediting agencies or accreditor autonomy, common national or regional eligibility and accreditation standards, and unlimited or restricted accreditation information.

At the same time, there was agreement concerning the new organization's need to represent accreditation vigorously, to stress student outcomes, to have a research component, to be independent of the Washington-based associations and the regional commissions, and to have no NPB members on a new organization's board. Tension mounted with the realization that creating a new national organization on accrediting was going to be more difficult than had been anticipated.

The NPB leadership commissioned James Harvey, a well-known Washington educational consultant, to produce a document that would summarize the tentative proposals agreed upon at the Barcelo meeting. The National Policy Board report (Harvey paper) entitled, "Independence, Accreditation, and the Public Interest" was intended to bring the higher education community up to date on the discussions that had been taking place (NPB Special Report on Accreditation, 1994). The document was meant to be an unfinished statement on which readers would comment. The NPB hoped that helpful discussion of the proposal would take place at national and regional higher education meetings. The document included a name for the new organization, The Higher Education Accrediting Board (HEAB). Institutions, not associations, would be members. The twenty-one member board would have a public member majority. Core standards were to be developed. HEAB would have the authority to enforce sanctions against accrediting agencies that did not live up to the core standards, practices, and policies. The report clearly stated that the NPB had no authority beyond its own ideas and that these were only proposals, distributed with the hope that the higher education community would join in the discussion of the issues raised in the paper and support a new organization.

The reaction however, was not what the NPB members had anticipated. While the NPB report (1994a [Harvey Paper]) received mild, but definite approval from 70% to 80% of the presidents who voted, other presidents, particularly in the private sector, reacted loudly and negatively. To the great surprise of the NPB members, many readers took the document to be a finished piece of work that declared unilaterally that a new, powerful accrediting structure was to come into being. Strong expressions of opposition were voiced against what was perceived to be the arrogance of a self-designated group presuming to impose on higher education a national body of regulators. As Stephen Weiner (Western Association of Schools and Colleges, WASC) described the response to the NPB Report (Harvey Paper), "A number of opponents were vociferously against it; . . . visibly, noisily, and persistently" (1995).

Congressional elections of 1994. The election that gave the Republicans control of both houses of Congress meant that a different, unfamiliar political landscape would have to be dealt with, and the sense of urgency that first drove the members of NPB to try to form the new national organization on accrediting needed reappraisal. Republicans had a long history of suspicion toward federal regulation, except where morals and defense were concerned, and the higher education community and antiregulation noises from the new Congress generated optimism among colleges and universities, especially small, private institutions.

The primal scream. The impact of the new Republican Congress was revealed in the postelection fall meeting (1994) of the National Association of Independent Colleges and Universities (NAICU), when Congressman Newt Gingrich (R-Georgia) addressed NAICU's membership of college and university presidents. The audience was sharply attentive when Gingrich, the new Speaker of the House, spoke of the various Republican initiatives for the new Congress (e.g., The Contract with America). When Speaker Gingrich questioned the overregulation of colleges and universities in the administration of SPRES, the audience rose, applauded vigorously, and exuberantly voiced approval. Sister Matesich (President, Ohio Dominican College) characterized the demonstration as "a primal scream" against onerous regulation.

NAICU president, David Warren, like other Dupont Circle associations heads, was an advocate for common, national accreditation standards, favoring a strong national agency on accrediting with power to apply sanctions against accrediting agencies. However, his membership had provided the loudest, most negative responses to the NPB Report (Harvey Paper). With the NAICU member reaction and the change in orientation that the Republican victory registered, President Warren reconsidered his position regarding the new national organization. Along with several other NPB leaders, he quickly saw that there would be shaky support for a new national agency on accrediting without vastly increased direct input and deliberation by presidents and other stakeholders regarding the controversies surrounding accreditation.

As part of the plan to gain support for the creation of the new national organization, the NPB conducted a series of focus group discussions on the proposed Higher Education Accrediting Board (HEAB), inviting and receiving comments from stakeholders. There was a continuum of opinion from enthusiastic support to indifference to outright hostility with the tide turning to rejection. On January 25, 1995, President John Silber of Boston University sent out a particularly alarmist letter to a number of his colleagues. He saw HEAB as "an unelected, self-perpetuating Washington-based body which would set accreditation standards for all regional agencies" (1995). He urged college and university presidents to oppose the creation of HEAB by writing to their Congressional delegations. In his final paragraph, he asserted that "HEAB would heap disaster on American Higher Education" (1995).

The National Policy Board (NPB) Meeting, Phoenix, March 8–10, 1995

A chastened, cautious group convened at the Radisson Resort Hotel in Scottsdale, Arizona. The NPB members realized that they had misread the political setting in which the new organization was being constructed and that far closer attention must now be paid to stakeholders and the environment. The participants would seek to interpret accurately the meaning and intensity of the reactions to the NPB Report (Harvey paper) and closely monitor responses to the work currently underway. To build their organization the NPB needed to acquire a far greater level of legitimacy for the project, and the way to do that was to align their processes and purposes with the values of their most important, yet disparate constituencies (mimetic isomorphism). Following the presidential and other constituency reactions to the NPB report (Harvey paper), the NPB participants would ask very basic questions. "What is the problem we are trying to solve?" "What is our purpose?" "What are we trying to accomplish?". And implicit in these questions were further questions. "Is this a wild goose chase?" "Can we really put this organization together?" "Should we?" (Bloland, 1995a).

These questions were asked and debated at the Phoenix meeting. Most of the members concluded that accreditation should continue, that the planning structure in place was sound, and that a new national organization on accrediting should be created. But the group was not confident in its deliberations concerning the next moves. The discussion turned to strategies for accomplishing the NPB's mission. The participants came fairly quickly to two conclusions. One, the whole process had to slow down, or there would be insufficient support to carry the project to fruition. And two, it was absolutely necessary to bring college and university presidents directly into the organization formation process. The first idea was surfaced by Cornelius Pings (president of the Association of American Universities, AAU) early in the meeting when he said, "I guess I'm the designated bomb thrower" (NPB, 1995a). He then told the group that in light of the present circumstances AAU would not endorse any new organization that this group would put together. He said that his members needed time to consider the question of the new organization. He was quickly joined in this view by other participants, and the group came to a realization that a new organization was not going to emerge from the Phoenix meeting.

Pings's view was not universally well received. Michael Adams (president of Centre College), had read the reactions to the NPB report (Harvey paper) in a positive light, and he expressed concern that momentum might be lost if the organization-building activities were slowed down or postponed.

The concept of slowing down was accompanied by discussion concerning how to bring more presidents into the picture. This was clearly a strategy for gaining the required legitimacy that had eluded this group as organization builders. But this course of action was not without peril. The NPB was concerned that presidents might pose two contradictory problems. Notoriously busy with priorities at their home institutions, presidents would be difficult to keep focused and on task for any length of time. The other problem was that the presidents might become too interested and decide to carry on a constitutional convention, creating something entirely new, different, and probably unusable from the NPB's perspective. Through this discussion on wider presidential participation, the NPB decided to include presidents as partners in order to forge a coalition with enough power and legitimacy to create a new organization.

Many participants thought that the NPB and its activities were on slippery ground. There were NPB members who came to the meeting with the intention of voting the HEAB proposal down. In fact, some came prepared to end the National Policy Board and its deliberations entirely. The discussions did result in a name change for the proposed organization, from HEAB to Accreditation Coordinating Council (ACC). With the overwhelming agreement that presidents needed a larger role, Charles Cook, director of the Commission on Institutions of Higher Education of the New England Association of Schools and Colleges, and David Pierce, president of the American Association of Community Colleges, were asked to revise the NPB (Harvey) proposal. The board composition was changed to reflect the importance of college and university CEOs. The 21-person board would now have twelve presidents or chancellors, three other members from higher education, and only six public seats.

By far the most important event of the Phoenix meeting was the decision to have the NPB meet with a representative committee of college and university presidents at a June meeting. The Phoenix meeting marked the beginning stages of the transition by the NPB and the later Presidents Work Group from strategies to respond to and influence their highly politicized environment to much more consciously isomorphic activities that would bring about wider approval of their work and a more solid foundation of legitimacy for a new organization on accrediting. Analysis based on new institutionalism now becomes more appropriate than explanations derived from old institutionalism.

The National Policy Board (NPB) Presidential Lansdowne Conference, Leesburg, VA, June 19–20, 1995

The purpose of the Lansdowne meeting (1995b), entitled "Conference on the Future of Accreditation," was to bring together more than fifty institutional presidents and trustees to provide feedback to the NPB on the proposed constitution for the new Accreditation Coordinating Council (AAC). The NPB was also interested in involving the broader population of presidents and other opinion leaders in addressing accreditation issues.

Robert Atwell, ACE, began the meeting by proposing to the group that there were three possible outcomes to be considered from this meeting: disband the NPB, disband the NPB and turn the problem over to the presidents, continue the NPB and rewrite the proposal.

In the discussions that ensued, the national associations tended to take a position favoring a strong new organization with power to insist on common standards or what had come to be called "threshold" standards and to curb fringe accreditors. The associations sought to include in ACC's membership only degree-granting higher education institutions, to slightly increase public access to information from accreditation visits, and to slow down the proliferation of specialized accreditors. The regional accreditors asserted that their threshold standards were now similar to each other.

The presidents represented the various perspectives that reflected the orientations of the national associations and the regionals. Stanley Ikenberry (University of Illinois) spoke for the AAU in insisting on the need for a set of principles to guide the deliberations. He generally came out in favor of a national organization.

The strongest statement of opposition again came from President John Silber of Boston University, who was unequivocally hostile to the idea of a new national organization on accrediting. Early in the meetings he stated, "There is no need for a new organization" (Bloland, 1995b), and later called into question the legitimacy of the entire undertaking:

> There is not going to be any validity to a decision here. The meeting should not pretend to be representative of national higher education. You should be considering how you create no organization, but can achieve everything we want through coordination by Dupont Circle. (Bloland, 1995b)

In the late afternoon of June 19, Robert Atwell significantly introduced the possibility of transferring responsibility to create a new national organization on accrediting from the NPB to a body of college and university presidents. Atwell said,

> There ought to be a national body. But how do we get from here to there? Among the colleges and universities, there is widespread support in the public sector. There is a widespread negative response in the private sector. So, don't try to solve the question now, but hand it to a group of presidents. NPB has done all it can do. We need a proposal that is acceptable to all sectors. (Bloland, 1995b)

This was a delicate moment in the process of organization building, because it was still unclear if there was to be such an organization. David Warren had introduced the idea of building a system at the national level in which all the needed tasks would be performed, eliminating the necessity to create a single, overarching organization. Participants were using Warren's term "organization/system" (Bloland, 1995b). However, in short order, Stanley Ikenberry began speaking as though the idea that the presidents should take over responsibility for creating a new national organization was a given. He said, "How do we sunset NPB?" This was followed by a statement from President Peter McGrath of the National Association of State Universities and Land-Grant Colleges (NASULGC), "Implicit in the discussion is a consensus that NPB ought to step aside. A committee of presidents should be convened to deal with the question on the table and come back to all of us" (Bloland, 1995b).

The question, in Stanley Ikenberry's words, had become, "How are we to put together presidents?" Robert Atwell followed with, "We think we should hand off to a group of college presidents the task of creating or not creating an organization and bring back this fall to this group, whatever it wishes" (Bloland, 1995b).

Thus, the circumstances moved from acknowledgement that there was sentiment to turn matters over to college and university presidents to an assumption that this was going to happen, followed by a discussion on how to do it, including the naming of Stanley Ikenberry as chair of the presidents' group. At this point there seemed to be, at least on Atwell's part, a belief that the NPB would be included in another meeting of the presidents and that the NPB would receive and presumably approve of what the group of presidents had put together. Such a meeting did not take place. Neither the NPB nor the Lansdowne group met again.

The Lansdowne participants agreed that a national body of college and university presidents should be established to follow through and create the national organization/system on higher education. That group was called the Presidents Work Group (PWG). Twenty-five educational leaders and consultant Billie Stewart were invited to develop new proposals. There were twenty-four CEOs from liberal arts colleges, community colleges, land-grant and state universities and colleges, AAU institutions, and one non-president, Ira Lechner, trustee of Randolph-Macon College. The Presidents Work Group included a number of presidents from the Lansdowne meeting and several persons who had been a part of the NPB. Stanley Ikenberry became Chair, and Michael Adams, president of Centre College, and Jacquelyn Belcher, president of DeKalb College, were named cochairs. A committee of college and university presidents was selected to formulate a plan for creating the new accrediting organization/system. The drafting committee was to deliberate during the summer and write and circulate a proposal to members of the Presidents Work Group. Based on the feedback, a revised draft would be distributed widely in the higher education community. A referendum on the completed document would then determine the strength of support for the new organization/system.

There were mixed responses from the members of the NPB to the dissolution of their organization. For some there was a quick retreat and considerable relief that the NPB was no longer in business. Other participants had a sense of accomplishment and a continuing interest in the task of building the organization. There was also significant continuity and overlap in the transfer of responsibility from the NPB to the Presidents Work Group. Many of the participants in the Lansdowne conference were involved in the Presidents Work Group, but none of the NPB members, and only one NPB staff member, Billie Stewart, continued. In addition, financing of the Presidents Work Group came from the same sources used by the NPB. The close ties between the two organizations led some critics, particularly President Silber, to charge the PWG with simply being a continuation of the NPB. Other participants, e.g., James Appleberry, president of the American Association of State Colleges and Universities (AASCU), came to take pride in the lasting influence and impact that the NPB had had on the deliberations of the Presidents Work Group.

The Presidents Work Group on Accreditation (PWG) Meeting at the Hyatt Regency O'Hare, Chicago, August 2–3, 1995

The Presidents Work Group (PWG, 1995a) was in the difficult position of demonstrating that their organization was different from the National Policy Board (NPB) in composition and perspective, not a simple continuation of the perspectives and orientation of the NPB. At the same time, the PWG was conscious of the debt owed to the NPB for its fine work. In fact, the PWG had a charge from the NPB to not reinvent the issues, but to move on. Like the NPB, this group was quite adamant about not reproducing COPA. Also like the NPB, because of the nature of work to be done on accrediting at the national level and the sets of relationships involved, the PWG was often forced to adopt COPA-like solutions to problems of goals, practices, and organization. Their basic legitimation strategy was convincing their most important stakeholders, particularly fellow presidents, that this was to be a presidentially controlled and run organization, not one under the sway of Dupont Circle or the regional and specialized accrediting agencies. Another major strategy was to emphasize that the PWG was building an organization that would focus on accrediting in higher education, not on accrediting in postsecondary education. Their task was to establish a convincing case that the new organization would have teeth, would control fly-by-night accrediting agencies, curb the specialized accrediting agencies, and allow more accreditation information to be available to the public. PWG participants expended much effort in writing a preamble to a new document that would convincingly justify their work. Like the NPB, the PWG had a potential problem convincing themselves and their constituents of their own legitimacy. Although there was considerable legitimacy in just their status as presidents and trustees, like the NPB, the PWG had no official authority and no real power to compel anyone to participate in any new organization that was put together. As Ikenberry asked at one point. "What if we threw a party and nobody came?" (PWG, 1995a). Perhaps the regionals would not cooperate, and the specialized accreditors might fail to reconcile themselves to the fact that they had been left out of the PWG's deliberations entirely, that Congress would take a dim view of a new organization, and that the Education Department, which was having legitimacy problems of its own and was being threatened with extinction, would not grant legitimacy to a new organization.

In striving to isomorphize mimetically with the values and ideals of the external environment, the PWG was confronted with a minefield of potentially incompatible societal values. Picking its way through would continue to be a delicate and demanding process. The members formulated solutions to their problems with timetables and strategies calculated to convince their constituents. At one point in the discussions, the group was divided into two groups to discuss two major questions. What direction should the PWG take in putting together the new organization? What should the new organization look like? What structural options should be considered?

Jacquelyn Belcher, reporting on the results of a PWG discussion group, offered suggestions that were to be a part of the rest of the PWG discussions. Make the membership higher education and not postsecondary education. Be specific about what the organization will and will not do, and be open about its limitations. Be clear that the organization's major responsibility is to higher education institutions, but don't lose sight of the fact that fiduciary responsibility is owed to the public as a whole. Differentiate the new organization from the old COPA in every way possible. Bring the regional and specialized accrediting agencies into the new organization, but give them advisory, not veto power. Give the new organization a coordinating function. Have it operate like an umbrella organization. Make sure the organization's board is not self-perpetuating. Do not create a court of appeal. Put teeth into the organization by getting presidents involved and making them responsible. Have the new organization advocate strongly for voluntary institutional self-regulation through accreditation (PWG, 1995a).

There was a good deal of talk about how the PWG needed to discuss and present first principles, to articulate clearly to the public the need for accreditation and for a national organization. There was a sense that because the NPB had not been successful in creating a new organization on accrediting, the PWG must get it right, that if this group didn't produce a solution to the problems of accreditation, something important would be lost and perhaps not retrieved for a generation. Thus, from the beginning there was a preoccupation with a strong, forceful, clear convincing statement as a preamble to whatever document would be produced.

This group, mindful of the difficulties that the NPB had faced, tried and generally succeeded in being realistic concerning what might be accomplished. Michael Adams, who had been with the accreditation issue from the beginning of the NPB, said that this group did understand the issues, and was competent to complete the job. He invited the group to consider a limited, realistic strategy. Adams said, "We are seeking the art of the possible. We need to decide what we can sell. There is a good knowledge base here. We are not walking around in the wilderness" (PWG, 1995a).

Stanley Ikenberry was also cautious about trying to do too much and emphasized the necessity to build support for the PWG's efforts. He said, "I don't want to break too much new ground" (PWG, 1995a).

There was considerable emphasis at various points on the notion of putting together an organization that would have limited jurisdiction, so that stakeholders would not become too skittish and balk at the idea of the new organization. Two limitations were proposed but not really distinguished from each other in the discussions: build a strong organization, but with power to do very few things; build an organization with limited power.

One suggestion was that a minimal organization should be formed which later could develop into something more substantial and powerful. In the end, the organization that was created was one in which a skeletal structure was put in place with the idea that the new board would tackle most of the hard questions. The major advocate for including the specialized agencies in the deliberations was Robert Glidden, president of Ohio University.

The PWG discussed the possibility of folding the new organization into ACE. This was rejected on several counts. Affiliation with ACE would not be acceptable to the presidents; such a connection would muddy the waters in regard to lobbying, and neither ACE nor the regional accrediting organizations were likely to find such an arrangement acceptable.

For some time, the idea of having the functions of a national organization on accrediting done by parcelling out tasks, following David Warren's suggestion, was being incorporated into the discussions. That is, the participants were using the term "organization/system" regularly, with "system" standing for the notion of doing everything without a national organization. This effectively ended with Stanley Ikenberry's statement, "What seems to be a fragmented approach is absolutely unacceptable. We have to have a critical mass. We must bring these functions together" (PWG, 1995a). In the end, the participants decided on a single, independent organization.

Structure. There was much discussion about who should be on the board and how the board should be put together; however, there was no consensus. During this meeting, a discussion panel on structure proposed a board composed of eighteen members, representing each of the six regional accrediting bodies: six from the presidential Washington associations and six from specialized accreditors and other groups. One third should be trustees and two-thirds sitting presidents.

A committee was named, whose initial members were Robert Glidden, president of Ohio University, Thomas Corts, president of Samford University, and Sister Mary Andrew Matesich, president of Ohio Dominican College, and who, with help from consultant Billie Stewart, drafted the preamble and new document. Their proposal was to be circulated to Stanley Ikenberry, Michael Adams, and Jacquelyn Belcher, the chair and cochairs, and then sent to all the members of the PWG for their comments (PWG, 1995a, p. 9). Their concern was that the next outline of the new organization had to have a very persuasive preamble and absolutely had to be viewed by readers as only a draft, not a finished document. Their solution to the difficult question of who would be eligible to participate in the new organization was to include institutions accredited by accrediting agencies over half of whose members were degree granting. However, the membership question was not finally settled in the deliberations of the Presidents Work Group, except that members should be institutions, not associations or accrediting agencies. Again the panel argued that the new organization's board must do most of the defining of the new structure. This is in fact what happened.

The PWG discussed at length the composition of the board. The problem was to find a way to include representation from all the major stakeholders and at the same time to including the "heavy hitters," who would supply the credibility necessary for a new, fragile organization to get off the ground.

The first step in ratification of a new proposal was to seek the endorsement of the presidential associations for the new organization and, if approved, have a presidential referendum to vote the organization up or down. A big question remained: what would constitute a legitimate approval rate among the associations? Michael Adams pushed for and succeeded in having the group agree that the organization would be a reality if four of the six national presidential associations, four of the regional accrediting agencies, and a simple majority of the voting institutions approved.

The PWG discussed extensively the cost of the proposed organization. There was much concern regarding who might serve as president of the organization. There was agreement that a strong leader was necessary. The PWG began to focus on the question of how to build a highly legitimate board.

A meeting of the PWG was then scheduled for September 20, 1995, to react to the information gathered from presidents. The group planned to have a completed proposal by mid-October to be disseminated in time for discussion at the fall meetings of the major national presidential associations and accrediting organizations. Stanley Ikenberry was to send a letter accompanying the proposal.

Although there was never unanimous agreement, the August meeting did reach a loose consensus on a number of basic issues. The group concluded that there should be an independent national organization on accrediting and it should not be folded into the American Council on Education or built on the structure of CORPA.

On August 14, 1995, Chairman Ikenberry sent a letter to the members of the PWG, indicating the areas where there was consensus by the group and pointing to what he thought needed to be resolved. He was especially concerned that the board of the new organization avoid reflecting the traditional special interests, i.e., regional accrediting associations, specialized accrediting agencies, and presidential associations. He was concerned about the size and composition of the board. He thought a board of 18 to 21 members (as proposed at various times), was too many, and he argued for a smaller number with a majority of college and university CEOs.

In late August members of PWG went to various stakeholder meetings to explain what the PWG was doing, to gauge the mood of the interested parties, and to garner support for their work. The PWG was engaged in legitimacy work. Ikenberry met with the big six Washington-based associations. He was surprised at how remote the associations were from the concerns of accreditation and how little interest remained in being involved (Stewart, 1995). He also met with the CORPA board, which was reluctant to think in terms of a new organization when CORPA was already up and running. Billie Stewart met with the regional associations in Hawaii and learned of their relief in shedding responsibility for putting together a new organization. President Glidden attended an ASPA meeting in Colorado, and PWG members attended other meetings as well, in an effort to gain support for their work.

The Presidents Work Group on Accreditation (PWG) Meeting at the O'Hare Hilton, Chicago, September 20, 1995

By the time of the September meeting (PWG, 1995b) a new name for the future organization on accrediting had been proposed, the Council for Higher Education Accreditation (CHEA), and this became the official name. The new title reflected the two most important requirements of the PWG, that the terms "accreditation" and "higher education" be in the title so that there would be no doubt about what the organization's purpose was, and that the title would not refer to the broader population of postsecondary education.

In this meeting the group sought sufficient agreement to allow the document to be sent out within 72 hours after the meeting. To be dealt with were the ticklish questions of membership in the organization, size, composition, and method of selection of the board of directors, the basis for and the amount of fees to be charged, a viable organizational structure, a first-year budget, and the procedures by which the proposal would be legitimately ratified.

The question of organization membership continued to be vexing. The regionals wanted to include only fee-paying higher education institutions that were regionally accredited. This had the advantage of providing an already defined membership, which would reduce the risk of law-suits that were bound to arise if some degree-granting institutions were excluded as undesirable and at the same time met the requirements proposed by the PWG.

The PWG proposed a voting membership that went beyond the regional membership to include all colleges and universities that granted degrees and had accreditation from a recognized accrediting agency. The definition of a recognized accrediting body included meeting all national recognition requirements and having at least 51% of the members be degree-granting institutions. However, this broader definition of the proposed new organization's jurisdiction contained the possibility of automatically including some institutions that were marginal enough to be considered undesirable. In both cases, there was a problem of which stakeholders would find either solution acceptable. How would the PWG build legitimacy for the new organization? How would the PWG proposal be received by the regional bodies? Would the proposal be acceptable to the accrediting bodies not under their jurisdiction? Would the CEOs of institutions approve of either one? Would the problem of being inclusive while having tough standards be solved? The choice came down to a question of whether the PWG would make a list of those who were to be included or provide a generic definition of who should be included.

The draft proposal included a thirteen-member board, nine of whom would be CEOs of colleges and universities, with four current or former trustees. The PWG participants thought that a larger board would diffuse responsibility and depend too much on staff-generated and staff-implemented policy. At this ambitious meeting the PWG wanted to propose not only the size and composition of the board, but also provide a slate of candidates for that board. This was real progress in the organization-creation process. A plan was promulgated, a division of labor called for, a step-by-step process instituted, and a timetable established. A proposal draft, dated October 1995 was sent to three thousand presidents and to the accrediting and presidential associations. This document was conspicuously labeled "draft" and specifically called for comments. Over four hundred replies were received, a reflection of the hopes and fears that the higher education community had regarding accreditation. As Stanley Ikenberry noted, "On balance, the reaction was favorable, but not enthusiastic" (PWG, 1996).

Revision as Mimetic Isomorphism

The drafting committee met on January 4, 1996, to revise the October draft. The revised draft, dated January 11, 1996, was the focus of discussion at the January 31, 1996, meeting in Atlanta. That latest draft proposal was revised on the basis of the responses. One result was the writing of a larger and more detailed preamble to justify more elaborately the need for a new organization and to allay anxieties that stakeholders continued to have. There were criticisms that the proposed thirteen-member board was too small or too large. There was concern that the public was represented only by trustees. A major concern was that the board needed to project a high level of trust among the stakeholders, because it would be called upon to make a number of early crucial decisions concerning the organization. Thus, the PWG decided to include with the proposal the names of the nominees for the board. Much work went into making clear how the ratification process would work. The PWG needed to be persuasive regarding the significance of the new organization to the accreditation community, which by that time was questioning just how it would relate to the proposed board. The PWG sought to emphasize that the contributions of the specialized accrediting agencies would be recognized in the new structure. In addition, there were rumors in the January meeting that the regional agencies in their Phoenix meeting were about to start their own national organization. However, no real action along those lines occurred.

The Presidents Work Group on Accreditation (PWG) Meeting at the Atlanta Airport Hilton and Towers, January 31, 1996

This meeting (PWG, 1996) was held to move forward on the proposed set of bylaws that would provide the structure for the Council on Higher Education Accreditation (CHEA). The PWG reviewed the responses to the October 1995 proposal, considered the January 11, 1996, revised version of the proposal, discussed at length and carefully selected a slate of nominees for CHEA's board of directors, and talked about the ratification processes. A budget for the new organization was considered. The group was growing apprehensive about how their efforts were being received by the major stakeholders. This resulted in a preoccupation with the language the participants thought would help make their case. At the same time, there was considerable momentum, and PWG members were discussing what would happen after approval of the new organization.

By April 1996, the six major presidential associations had endorsed the establishment of CHEA. Among the regional accrediting commissions, only New England had failed to approve the creation of CHEA. On March 29, 1996, the Presidents Work Group sent ballots to 2,990 higher education institutions across the country with a recommendation that the presidents vote to approve the creation of CHEA. At the same time, voters were asked to approve the proposed fifteen-member slate of candidates for service on CHEA's board. Presidents were asked to return the ballots by May 3, 1996. One thousand six hundred ballots (54%) were returned. Ninety-four percent of those voting approved the establishment of CHEA (Final Report, 1996). The presidents and other voters approved both the creation of the organization and the slate of candidates for the board. CHEA was a reality. The bylaws of the Council for Higher Education Accreditation (CHEA) were adopted September 30, 1996 (Bylaws, 1996).

The agency that emerged has a board of directors with all the necessary powers to conduct the business and affairs of the CHEA corporation. In addition, the board provides the standards and means for recognizing accrediting agencies, reviews recognition denials and withdrawals, and maintains a list of recognized accrediting agencies. CHEA acts as the voice for voluntary higher education self-regulation through accreditation at the national level. It is a clearinghouse for accreditation information, an advocate for accreditation, a center for discussion and research on ways to improve accreditation, and it acts as a mediator in accreditation conflicts (Glidden, 1997).

On July 1, 1996, Robert Glidden, president of Ohio University, was elected chair of the fifteen-member board of directors, and Larry Braskamp, dean of the College of Education at the University of Illinois at Chicago, was appointed executive director of CHEA for a one-year term. Office space was provided in One Dupont Circle. Michelle Glidden was hired to assist in setting up of the new organization. Judith Eaton, chancellor of the Minnesota merged system of state universities, was named CHEA's first president in April 1997. Although a tiny operation with many questions still unanswered, CHEA was up and running, a live, functioning organization.

Conclusion

The formation of a new national organization in the shadow of a previous, troubled agency on accrediting was a difficult, drawn-out undertaking, with a number of pitfalls along the way. The board of directors' primary concern was to establish sufficient legitimacy to complete the task in the face of the differing agendas of powerful stakeholders and in spite of doubts within the ranks of the creators. The most important means of establishing legitimacy were (1) the infusion of college and university presidents as the major participants in the organization-building process, (2) the meticulous construction of an organizational structure, different enough from its predecessor, COPA, to be acceptable to the most powerful constituencies, particularly presidents, but still able to carry on the necessary work of a national organization on accrediting.

The Contribution to Institutional Theory

It would be sufficient to use terms and concepts from institutional and organization-creation theory to guide the description and analysis, particularly because such an interpretation emphasizes legitimacy construction. However, the study presented here does more; it combines institutional theory with organization-creation theory to enhance both. This study shifts attention from institutionalization of a new organization to institutionalization in the creation process, thus attending to the influence and legitimization problems and opportunities faced by the founders. It involves a use of institutional theory to conceptualize a two-stage transition: from a politicized stage, in which legitimacy was more or less assumed, to a stage in which legitimacy was understood to be precarious and in which strategies of isomorphism dominated. The dynamics of this case provide an opportunity to do more than juxtapose old institutionalism against new institutionalism, as is done in much of the literature. Here, the two perspectives are considered different but complementary stages in the creation of a new organization rather than rival interpretations.

The Contribution to Organization-Creation Theory

Organization creation is not a conventional setting for applying institutional theory. Studies of institutionalism usually involve already formed organizations, but in this study old and new institutional perspectives provide explanatory structure as stages in the preorganizational period. Organization-creation and institutional theory fit together well in this case because of the great concern with generating legitimacy, and the study of organization creation is enhanced by concentrating on legitimacy.

But this study goes beyond that. Organization-creation studies tend to emphasize the role of entrepreneurs, persons who see opportunity in the need for a new organization and exploit the possibilities, often creating careers for themselves (Kimberly, 1980; Wilson, 1995). Entrepreneurs want to run the formed organizations, expanding the agency's resources and increasing their own power and influence. The creation of CHEA was different. Organization creation here has an aura of reluctance foreign to the traditional story of entrepreneurs. Most of the participants had doubts about the purposes, the potential power to make decisions, and the general ability of the new organization to succeed. Many were ambivalent about their own participation in this agency's genesis. The leaders stepped in because of their belief that a new organization was needed or because they wanted to assure that a new organization would not threaten their own organizations. No one in the group expressed interest in creating a career in the new organization. Both the NPB and PWG participants wanted to hand over responsibility to a new board. As a general proposition, heavy emphasis upon entrepreneurship may be overstated in organization-creation theory.

To their credit, the National Policy Board and the Presidents Work Group established a national organization on accrediting acceptable to the major constituencies. CHEA has settled in as an established agency among the associations in Washington, DC. Most of the issues that led to the demise of COPA and creation of the new organization remain: conflicting expectations from a variety of constituents concerning what accreditation should and can do to assure quality in higher education, the potential for a larger federal presence in the accrediting process, and the threat of increased government regulation of higher education. It is CHEA's task to wrestle with these and other issues that arise and become the legitimizing voice for voluntary accreditation nationally.

Notes

[1] Higher education here refers to degree-granting institutions. Postsecondary education refers to education institutions (both degree-granting and nondegree-granting) beyond secondary schools.

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JE John C. Scott

The Chautauqua Movement

Revolution in Popular Higher Education

The importance of the Chautauqua movement in American popular culture has long been recognized. The original Chautauqua in western New York (1874–present) is a center for nontraditional education, religion, and the arts. From the 1870s to the 1930s, a variety of Chautauquan formats and notions spread across the United States, Canada, and other parts of the world. The general public and educators, alike, continue to respect the "Chautauqua Idea." Yet, academia has never fully acknowledged its debt to Chautauqua for historical innovations in adult and university education. No previous Chautauqua movement studies have analyzed the entire range of its contributions to the US system of higher learning. Furthermore, leading histories of American higher education, such as Frederick Rudolph's *The American College and University: A History* (1962); Laurence R. Veysey's *The Emergence of the American University* (1965); John S. Brubacher and Willis Rudy's *Higher Education in Transition* (1976); and, Christopher J. Lucas's *American Higher Education: A History* (1994), made little or no mention of Chautauquan ideas. The aim of this research is to set the record straight.

Analyzed in this article are the Chautauqua movement's influences on the development of US higher learning during the later nineteenth and early twentieth centuries (with linkages to current issues facing postsecondary education). To begin with, Chautauqua cofounder John H. Vincent

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probably articulated the first modern theory of adult education in this country. Vincent also created the Chautauqua Literary and Scientific Circle (CLSC), 1878-present, the first national adult education program and correspondence school. Across America, several hundred independent Chautauqua grew up, modeled after the original. Chautauqua University (1883–1892), on the grounds of the original Chautauqua, pioneered extension and correspondence courses, summer sessions, and the university press in the United States. Thus, this institution served as William Rainey Harper's model for organizing the University of Chicago in 1892 (extension, summer sessions, university press). The "Wisconsin Idea" (1904), too, was linked with Chautauqua in that the University of Wisconsin adopted extension services during the 1890s and President Charles R. Van Hise was influenced by Harper's Chautauquan ideas. Finally, the circuit or traveling chautauqua companies, during the summers of 1904–1932, introduced cultural refinements to millions in rural North America.

Original Chautauqua: First Modern Theory of Adult Education

The Chautauqua movement was part of the American tradition of popular self-improvement. This tradition dates back to Benjamin Franklin and extends forward to the community college of today. In colonial times, Franklin formed the Junto, then came the nineteenth-century literary societies, mechanics' institutes, lyceums, and religious camp meetings. When the Chautauqua emerged, it was built upon this tradition (Kett, 1994, pp. xii-xiii).

The movement began with the founding of a Methodist institute for Sunday school teachers on the shore of Lake Chautauqua in western New York, during the summer of 1874. Its visionary cofounders were Reverend John H. Vincent (superintendent) and wealthy layman, Lewis Miller (president). Neither was college educated. Chautauqua strived to be all-denominational and was an immediate success. This original Chautauqua, which still operates today, was the model that several hundred communities across the land attempted to imitate by forming independent Chautauqua. During America's agrarian period, prior to compulsory education, Sunday schools were key educational centers. Therefore, the Chautauqua offered an intensive summer course for religious teachers to parallel the contemporary "Normal courses" for public school teachers. Early on the curriculum was expanded to include general education. A bewildering variety of programs and modes of delivery found expression on the then 50 acre site each summer. Soon after its founding, Chautauqua revolutionized both religious and secular adult education (Schurr, 1992, p. 40).

In 1878 almost five hundred persons attended Chautauqua. By the early 1900s, thousands attended each summer (Tapia, 1997, p. 20). Much of Chautauqua's popularity owed to the savvy of cofounder Lewis Miller. A prosperous inventor-manufacturer (like his son-in-law, Thomas Alva Edison), Miller convinced Vincent of the value of an idyllic rural setting for education and recreation. Miller was also known for creating the famous "Akron Plan" for Sunday schools, serving on the Akron board of education, serving on boards of colleges and providing financial support, and even designing a land-grant college at the request of the governor of Ohio (Ferguson, 1966, pp. 12–14; Irwin, 1970, p. 15).

John H. Vincent's *The Chautauqua Movement* (1886) may well represent "the first modern theory of adult education in the United States," according to Stubblefield (1981, p. 199). Grattan (1971) called Vincent's book a "classic of American adult education literature" (p. 168). Although the term "adult education" was not commonly employed before the 1920s (Kett, 1994, p. xii), Vincent's work contains the basic elements of modern adult education theory, most notably the concept of lifelong learning. Except for the strong Protestant emphasis, the doctrine of Vincent, as put into practice through Chautauqua, contributed to the twentieth-century adult education movement. In summary, Vincent asserts that mature men and women are able to learn, educational opportunities should extend beyond formal schooling, life is education, agencies promoting adult learning should work together, and adult education should examine current social issues (Stubblefield, 1981, pp. 199–208; Grattan, 1971, p. 168; Vincent, 1886, pp. 12–15).

The overarching goal of Vincent's theory and practice at Chautauqua was the democratization of education for adults, regardless of social class, age, or gender; however, race is not mentioned in his book (Vincent, 1886, pp. 2–9). Vincent, Harper, and other early writers frequently used the term "popular education" to describe their efforts. Today, the terms "adult and continuing education," "lifelong learning," "access," and "equal educational opportunity" are often employed to describe similar efforts. Chautauqua, in those simpler times, acted as an autonomous, private, nonprofit institution to democratize higher learning—with virtually no governmental control or involvement—yet still within the Jeffersonian spirit of expanding higher education, as with state universities and land-grant colleges during the nineteenth century. Throughout the twentieth century, democratization has continued with such efforts as the adult education and community college movements, the GI Bill, LBJ's Great Society programs, and most recently, President Clinton's 1997 tax credit for the first two years of college.

Platform lectures fit in well with Vincent's theory of adult education. Vincent emphasized the acquisition of knowledge, Christian and secular, for he believed that all knowledge is sacred (Vincent, 1886, p. 13). He credited Miller with the idea of bringing secular platform lecturers to

Chautauqua, in addition to theological speakers, as a way to attract larger audiences and generate more income. Vincent believed that exposure to the social and scientific ideas of the day would both enlighten participants and ease the rigor of daily Bible study (Morrison, 1974, pp. 47–48). At the original and independent Chautauqua, alike, there existed an inner core of serious students attending classes. Then there was an outer core of attendees interested in the "popular" or "general" program of lectures, music, and other entertainment. It was the popular programs that produced most of the revenues for these organizations (Kett, 1994, pp. 168–169).

The Chautauqua and its lecture program quickly captured national attention in 1875, when Vincent's former parishioner, Ulysses S. Grant, gave a speech while president of the United States. Six more presidents would follow. Freedom of speech was encouraged on the Chautauqua stage. The biggest names in politics, science, and entertainment regularly appeared, drawing huge crowds. Temperance reformers, self-improvers, educators, librarians, and others also visited (Morrison, 1974, pp. 42–43; Kett, 1994, pp. 157, 177). Social movements were launched from the original Chautauqua—itself an expanding social movement. For instance, the historically important Women's Christian Temperance Union (WCTU) was conceived of there in 1874. The WCTU worked for the prohibition of alcohol and for women's voting rights (Irwin, 1970, p. 58). Later, Alice M. Birney kicked off the National Congress of Mothers, forerunner of the PTA (Ferguson, 1966, p. 12). America's university extension movement was also catapulted from Chautauqua University in 1888 (Kett, 1994, p. 182).

Starting in 1875, Chautauqua began to offer secular coursework, beyond the "Normal Class" for Sunday school teachers, each summer. Singing, kindergarten teaching, and Hebrew classes were provided for public school teachers (Wells, 1958, p. 4). Later, these courses were formally organized through the Teachers' Retreat (1879). Also formed were the College of Liberal Arts (1878), Chautauqua Literary and Scientific Circle (1878), and "departments or schools of pedagogy, languages, music, sacred literature, and physical education" (Kett, 1994, pp. 156–157), as well as theology (Irwin, 1970, p. 18). In 1901 a school of library science was established under the direction of Melvil Dewey (Schurr, 1992, p. 44). Outstanding professors were attracted to the institution (Knowles, 1977, p. 37). Thus, "Johann Sebastian Bach gave a course in the study of music" (Case & Case, 1948, p. 15). Chautauqua originated general summer schools in America; they were simply not available elsewhere (Knowles, 1977, p. 38). Such rapid academic growth prompted Vincent to incorporate the entire organization as Chautauqua University between 1883 and 1892 (Morrison, 1974, p. 49). Chautauqua University pioneered summer sessions, correspondence and extension courses, and the university press. This important phase is examined in a later section.

In the tradition of private higher education in America, which continues today, the original and some of the independent Chautauqua manifested academic richness, prestige, and weighty influence on the overall system of higher learning. Currently, the proponents of private colleges and universities vehemently desire to preserve the academic excellence and diversity of these institutions in a democratic and pluralistic society.

Vincent, in 1886, summarized the national and international diffusion of the "Chautauqua Idea." At that point (prior to circuit chautauqua), the movement embraced: (1) the original and independent Chautauqua; (2) the year-round Chautauqua Literary and Scientific Circle (CLSC); and (3) the Chautauqua University on the grounds of the original Chautauqua, offering regular diplomas, certificates, and degrees (pp. 2, 15).

Succeeding the cofounders John H. Vincent and Lewis Miller, further visionary leadership was provided by two younger men. Between the 1880s and the First World War, William Rainey Harper and George E. Vincent were influential. Harper was recruited by John H. Vincent to teach Hebrew language and literature in the College of Liberal Arts, in 1883, the first year of Chautauqua University's existence. Harper soon exhibited administrative talent. He was promoted to principal of the college in 1887, a post he held until 1895. In the meantime, Harper accepted a professorship at Yale University in 1886 and the presidency of the University of Chicago in 1892. Deeply influenced by Vincent, Harper took on wide-ranging managerial responsibilities at Chautauqua, and there he developed his famous higher education ideas (Morrison, 1974, pp. 73, 76–78).

George E. Vincent was the son of John H. Vincent. He served as the fifth president of Chautauqua from 1907 to 1915. As a young man, he helped his father direct the organization. In 1892 George followed Harper to the University of Chicago, where he earned a PhD in sociology, accepted a professorship, and then rose rapidly to become dean of arts, literature, and science. In 1907 Vincent accepted the presidency of Chautauqua, although his vision for the institution differed from that of his father. Whereas John H. Vincent had promoted liberal education, George emphasized current events and social problems in the educational programs. His reasoning was that America was an emerging world power and, therefore, its citizenry ought to be well versed in national and international affairs (Morrison, 1974, pp. 78–79; Richmond, 1943, pp. 108–110, 132). In 1911 George E. Vincent became president of the

University of Minnesota. Like Harper before him, in going to Chicago, Vincent carried with him Chautauquan ideas. Importantly, he established Minnesota's statewide university extension program (Morrison, 1974, p. 83; Gray, 1951, pp. 208–217).

In 1902 the New York operation of educational, recreational, and inspirational programs was chartered under its current name of Chautauqua Institution (Irwin, 1970, p. 18). Artistic fame has long been enjoyed by the organization. For example, from 1874 up to now, Chautauqua has hosted the oldest continuous summer music festival in America (Wells, 1958, p. vii; Irwin, 1997, personal communication). Founded in 1929 were the Chautauqua Symphony Orchestra and the Chautauqua Opera Company, which is one of the oldest continuous summer opera companies in the nation (Schurr, 1992, p. 70). To this day, Chautauqua Institution remains a prestigious cultural hub. It is, however, no longer a national influence in higher and adult education.

Independent Chautauqua: Diffusion of the New York Format

By 1876 only two years after the founding of the "mother" Chautauqua in western New York, at least three "daughter" Chautauqua sprung up. These were located at Wellesley Island, Ontario (of the Thousand Islands in the St. Lawrence River), Bay View, Michigan (on Lake Michigan), and Clear Lake, Iowa (Hurlbut, 1921, pp. 361–365). A total of 292 independent Chautauqua have been identified as having existed (Snyder, 1985, p. 82). Today, perhaps a dozen independents still operate (Snyder, 1997, personal communication). Although they were not formally affiliated, the independents attempted to copy the original Chautauqua. They imitated its popular lecture and entertainment program as well as its academic program within a summer resort setting. Independents maintained informal, friendly ties with the original institution. A proportion of participants were also involved with the Chautauqua Literary and Scientific Circle (CLSC). Another linkage was enthusiasm for music (Grattan, 1971, p. 178). Independent Chautauqua in the eastern and southeastern United States tended to be founded or run by Methodists or Baptists. Out west, though, independents tended more toward ecumenism (Tapia, 1997, p. 22). Small towns of the midwestern region possessed the most independent Chautauqua (Snyder, 1985, p. 83).

The academic programs of the independents were generally less serious than that of the original Chautauqua. The great exception was "one of the largest independents, the Bay View (Michigan) Assembly, [which] was virtually a clone of the Lake Chautauqua Assembly." During the 1890s, it created its own correspondence school, the Bay View Reading

Circle, patterned after the CLSC. The Bay View Summer University offered courses "in nine departments that ranged from the liberal arts to business, photography, and elocution." The Michigan state board of education examined potential teachers for licensure at Bay View. Other independents also prepared teachers, such as San Marcos (Texas), DeFuniak Springs (Florida) (Kett, 1994, pp. 169–170), Monteagle (Tennessee), and Ruston (Louisiana). The success of the Louisiana Chautauqua (1890–1905) contributed to the decision to later locate Louisiana Tech University in Ruston (Stricklin, 1993, pp. 12–32). The Florida Chautauqua (1884–1927) was in DeFuniak Springs, a panhandle village of only twelve hundred residents. Yet, due to the Chautauqua's progressive academic influence, two higher education institutions were established in the town. These were McCormick University and Academy (1886–1888), which was destroyed by a hurricane, and the State Normal School (founded in 1887), which seventeen years later was moved to Tallahassee and merged with the Florida State College for Women, later to become Florida State University (Blazek, 1987, p. 383).

Chautauquan summer school students were mainly young adults interested in teaching careers. Emerging subjects of interest were art, kindergarten, and elocution. Hence, Vincent arranged for a textbook on elocution to be published, with most of the independents offering courses on the topic. In the long run, however, regular universities (imitating Chautauqua University) set up their own summer schools. Universities absorbed the teachers attending independent Chautauqua, who were increasingly required to obtain baccalaureate degrees for certification (Kett, 1994, pp. 170–173).

The public library movement of the later nineteenth century was stimulated by the several hundred independent Chautauqua (and the CLSC) that operated in small communities across America. Social libraries were followed by tax-supported libraries. A case in point is the social library that arose in DeFuniak Springs, Florida, shortly after the establishment of the independent Chautauqua there in 1884 (Blazek, 1987, p. 379).

Why did the numbers of independent Chautauqua decline dramatically during the early twentieth century? The overriding reason was the emergence of the circuit chautauqua, also called traveling or tent chautauqua. Circuit chautauqua were commercial ventures that booked, for thousands of small towns, most of the same lecturers and entertainers that the independent Chautauqua contracted, but at more affordable prices for patrons. The independents could not compete effectively with the circuit bureaus. Thus, by 1911 only 32 independent Chautauqua survived. Ironically, the tent chautauqua would meet a similar fate during the early 1930s (Snyder, 1985, pp. 85, 89).

CLSC: First National Adult Education Program and Correspondence School

Malcolm Knowles (1977), in his standard history of adult education, identified John H. Vincent's Chautauqua Literary and Scientific Circle (CLSC) as "the first integrated core program of adult education organized in this country on a national scale." Administered from the original Chautauqua, the CLSC began in 1878 and still operates today, but it relinquished its national focus in 1914 (Knowles, 1977, p. 37; Chautauqua Institution, 1997, p. 5). The CLSC attracted about 225,000 students between 1878 and 1894 (Kett, 1994, p. 160). During those same years, about 10,000 local reading circles were established, mainly in small towns of the rural midwest (Tapia, 1997, p. 21). Early on, the CLSC became a global phenomenon. In 1886 Reverend Vincent, who was also a bishop in the Methodist church, reported membership in Canada, Japan, China, Europe, Russia, India, and South and Central America. Many members were from missionary stations (pp. 42–43). There also existed a close relationship between the independent Chautauqua and the CLSC (Hurlbut, 1921, p. 381).

What allowed Chautauquan educational ventures to succeed was the emerging U.S. industrial economy, bringing with it increased prosperity, leisure time, and affordable transportation, such as passenger rail. Today, in a striking parallel, the Western world and Japan stand on the brink of the postindustrial or postmodern age. The emerging service economy promises to bring improved quality of life, space travel, perhaps the 20-hour work week, along with new technologies that are directly applicable to education and training, like the Internet or "information superhighway," CD-ROM, and interactive television.

The CLSC was also the first major correspondence school in this nation, although its focus was cultural, not vocational. Subsequently, from 1890 to 1930, there was an explosion of proprietary correspondence schools across America, which were vocationally oriented. Occupations from detective to musician could now be mastered by mail (Kett, 1994, p. 235).

Specifically, the Chautauqua Literary and Scientific Circle was a four-year correspondence course of home reading. It was offered throughout the year as an alternative to college for all types of mature adults, men and women, including senior citizens. Required reading was four to six substantial books per year in history, literature, sociology, and science. A diploma was awarded after four years of study and discussion. Most students joined a local circle, but some studied independently. By 1900 around fifty thousand adults had earned diplomas, out of two hundred fifty thousand enrollees (Briggs & DaBoll, 1969, p. 37). Graduates were encouraged to attend "Recognition Day" at the New York Chautauqua, an independent Chautauqua, or their village reading circle (Schurr, 1992, p. 44; Morrison, 1974, p. 58). Vincent admitted that the CLSC was not equivalent to a college education. Yet, his goal was to foster a "college outlook," meaning liberal education, in the adult student, through intensive reading in this "everyday college" (Richmond, 1943, pp. 71, 74). He also believed that college graduates could benefit from the program (Kett, 1994, p. 165). Vincent credited Chautauqua cofounder Lewis Miller with originating the four-year cyclical plan for the Circle, involving the four broad themes of English, American, Continental European, and Classical civilizations (Richmond, 1943, p. 81).

The Chautauqua Press was established in 1880—before the university period—to better serve the original Chautauqua's summer schools and the fast-growing CLSC. The press distributed all CLSC textbooks and published many of them, along with *The Chautauquan* (1880–1914), a monthly magazine (Case & Case, 1948, p. 16; Grattan, 1971, p. 171), which was distributed to facilitate local reading circles. The magazine contained some required CLSC lessons; consequently, its circulation approached fifty thousand by 1885 (Morrison, 1974, p. 63). After CLSC enrollments peaked during the 1890s, it dropped its pedagogical tone in favor of the popular literary magazine format of the day (Kett, 1994, pp. 161, 172–173). The mass appeal of *The Chautauquan* put it on equal footing with *Harper's*, the *Atlantic Monthly*, and the *Century* (Grattan, 1971, p. 171). Among its contributors were Teddy Roosevelt and Woodrow Wilson (Morrison, 1974, p. 63).

The Chautauqua Literary and Scientific Circle opened up higher learning to many social groups who were traditionally disjunct from colleges and universities, such as women, businessmen, and retirees (Case & Case, 1948, p. 15). William T. Harris, the U.S. Commissioner of Education, noted the effect of the Chautauqua reading circles: "Think of one hundred thousand persons of mature age following up a well-selected course of reading for four years in science and literature, kindling their torches at a central flame! Think of the millions of friends and neighbors of this hundred thousand made to hear of the new ideas and of the inspirations that result to the workers!" (quoted in Hurlbut, 1921, p. xiii). Although Vincent's purpose for the Circle was the pursuit of higher knowledge and self-improvement, many enrollees also had vocational interests. During the 1880s the vast majority of public school teachers were women. In 1882 one out of five CLSC students were females. Many CLSC students were already teaching or intended to teach in the future. Beyond that, by 1887 over twenty states established teachers' reading circles, which were linked in various ways to Chautauqua's local circles. Thus, pulling double duty, the CLSC prepared folks for state teacher examinations in places like Ohio and Indiana before normal school certificates were required (Kett, 1994, pp. 163–164).

Analogous to the CLSC, the less rigorous Chautauqua "Book-a-Month Club," which drew on classical literature, was introduced. It was the forerunner to the famous club of a similar name, starting decades later (Richmond, 1943, p. 82; Morrison, 1974, p. 63). In reality, the CLSC is the "oldest continuous book club in America" (Chautauqua Institution, 1997, p. 1). Although the CLSC did not develop the early-twentieth-century "great books" curriculum, it did pave the way for future community reading programs, such as the nonacademic great books program.

The public library movement of the later nineteenth century, in small-town America, was stimulated by the CLSC (and independent Chautauqua). Local Chautauqua reading circles, as well as different types of women's clubs, fueled popular demand for tax-supported library services. Before 1890, half of the ten thousand Chautauqua circles were in villages with populations between five hundred and thirty-five hundred, and few of those places had public libraries. Consequently, the CLSC systematically distributed books to its members (Kett, 1994, pp. 161, 212). A long list of small communities initiated public libraries through the efforts of local Chautauqua circles. Many of these libraries were later given Carnegie buildings (Briggs & DaBoll, 1969, p. 50).

Why did the Chautauqua Literary and Scientific Circle membership gradually decline from the late 1890s on? The CLSC was partly a victim of its own success. Competition came from imitators, such as home libraries, book clubs, correspondence schools, universities, and various other reading circles. Further competition came from public libraries and then, during the 1920s, from radio (Morrison, 1974, p. 69). On a philosophical level, by 1900 Vincent's concept of liberal education for the CLSC—closely resembling Matthew Arnold's elegant conception of culture—was out of step with the times. Progressive educators, led by John Dewey, viewed adult education as more practical and specifically grounded in life experience and work (Kett, 1994, pp. 220–222).

Chautauqua University: Forerunner in Correspondence Courses, Summer Sessions, Extension Services, and University Press

The rapid academic growth of the original Chautauqua in New York prompted John H. Vincent to incorporate the entire organization as Chautauqua University in 1883, with full degree-granting powers. A victim of its own success, Chautauqua's university project was abandoned in 1892, when competing universities and agencies adopted its radical innovations (Morrison, 1974, pp. 49–50). Unfortunately, for the history of higher education, the influence of Chautauqua University has been obscured by the larger Chautauqua movement. Thus, university historians have, for the most part, neglected Chautauqua University's revolutionary impact on the system. Correspondence courses, summer sessions, extension services, and the university press were all pioneered there by Vincent and William Rainey Harper. In 1892 Harper transmitted these and other Chautauquan innovations to the new University of Chicago—financed by Rockefeller's fortune. Immediately, Chicago became a great and most influential graduate institution at a critical time in the development of American colleges and universities (Bonnell, 1988, pp. 79, 283–284; Knight, 1952, pp. 214–215; Gould, 1961, pp. vii-viii).

Richard K. Bonnell (1988), historian of Chautauqua University, pointed out that the original Chautauqua already possessed a national and international reputation for excellence in religious and secular adult education, along with a sound financial base. For these reasons, the organization could establish the university and attract high-caliber professors and administrators. Henceforth, Chautauqua University became the leading university in the adult education movement. Furthermore, by serving the masses, it foreshadowed the uniquely American public service university (pp. 55–56, 66, 326–327). See the following section for a discussion of Chautauqua University as the prototype for Harper's Chicago plan (1892) and the "Wisconsin Idea" (1904).

Serving as chancellor, Vincent, in 1886, described five major divisions of Chautauqua University: (1) Chautauqua Assembly, including the distinguished summer platform program, Sunday school normal department, schools of language, and Chautauqua Teachers' Retreat; (2) Chautauqua Literary and Scientific Circle (CLSC); (3) Chautauqua College of Liberal Arts; (4) Chautauqua School of Theology; and (5) Chautauqua Press (p. 51).

Vincent and his associates continued to promote popular higher education through Chautauqua University. At the start, instruction was provided through summer sessions and correspondence study, building upon the earlier success of Chautauqua's summer schools and the CLSC correspondence program. A classical curriculum was offered, along with newer scientific courses. Both degree and nondegree programs were available, in addition to certificates and diplomas (Bonnell, 1988, pp. 58, 90; Vincent, 1886, p. 15). The College of Liberal Arts offered either bachelor of arts or sciences degrees. The School of Theology offered the bachelor of divinity degree (Woytanowitz, 1974, p. 19). Graduate instruction was also available (Bonnell, 1988, p. 118). Extension courses were superimposed on this plan in 1888.

Dr. William Rainey Harper was 27 years old when Vincent recruited him to teach Hebrew language and literature in the summer College of Liberal Arts. That was in 1883, the first year of Chautauqua University's existence. Harper soon exhibited administrative talent and was therefore promoted to principal of the College of Liberal Arts in 1887, a post he held until 1895. In the meantime, Harper accepted a professorship at Yale University in 1886 and the presidency of the University of Chicago in 1892. Deeply influenced by John H. Vincent, Harper ultimately directed both the academic and popular programs at Chautauqua, and there he developed his famous higher education ideas (Morrison, 1974, pp. 73–78; Bonnell, 1988, p. 236).

Harper's administrative responsibilities involved the planning of all degree programs and securing over one hundred faculty members to teach over two thousand students. He also represented the institution in the national scholarly community (Bonnell, 1988, p. 79; Gould, 1961, p. 24). Chautauqua University's system of education combined intensive instructor-pupil contact during the summer with correspondence study during the rest of the year (Gould, 1961, p. 24). Up to six hundred students invaded the Chautauqua grounds each summer. Many were transient college students and high-school teachers (Knight, 1952, p. 214). Demographically, College of Liberal Arts students were drawn from across America and from several foreign countries. They were mostly Protestants of the major denominations. Women were strongly represented; they made up roughly half of the enrollees during the first year that degrees were offered. The majority were part-time adult learners—today called nontraditional students—who were either paid employees or homemakers (Bonnell, 1988, pp. 102–103, 110).

Correspondence courses in American universities were pioneered by Chautauqua University, starting in 1883. It was the first learned institution to offer a broad range of collegiate courses and degrees to a large public by mail (Bonnell, 1988, p. 145). Prior to this, the Chautauqua Literary and Scientific Circle (CLSC), 1878-present, established itself as the first major correspondence school in this nation (Kett, 1994, p. 160). Early university correspondence courses in the United States were based on regular academic courses and were taught by full-time faculty members for credit or without credit. Professors assigned readings and written lessons, which were then graded and returned to students (Knowles, 1977, p. 39). Vincent and Harper wrote eloquently on the academic integrity and acceptability of correspondence study (Bonnell, 1988, pp. 45–48). Upon assuming the presidency of the University of Chicago, in 1892, Harper set up a correspondence department within the division of extension services (Knowles, 1977, p. 39). Today, correspondence study endures as an alternative type of postsecondary education. In fact, universities are currently moving to deliver courses on-line via the Internet—this is merely a sophisticated, technological form of correspondence instruction.

Summer sessions in American universities were also pioneered by Chautauqua University, starting in 1883 (Knowles, 1977, p. 47; Knight, 1952, p. 207; Bonnell, 1988, pp. 125–126). Scattered earlier efforts were Harvard University's summer school in the physical sciences (founded in 1869) (Knowles, 1977, pp. 46–47); the University of Virginia's summer law course (founded in 1870) (Bonnell, 1988, p. 126); and, the University of North Carolina's summer school in teacher training for whites and blacks of both sexes (1877–1884) (Knight, 1977, pp. 207–208). Actually, the New York Chautauqua's general summer schools date back to 1875, when such instruction was not available elsewhere. For Chautauqua University summer enrollees a spacious library was stocked with about fifteen hundred volumes. This permanent collection was seasonally increased by loans from the Theological State University of New York, the state library at Albany, and books brought by professors from their home institutions (Bonnell, 1988, pp. 75–76, 125). Professors, it seems, were "pleased with the opportunity for summer employment in an age of low salaries" (Woytanowitz, 1974, pp. 20–21).

The popularity of Chautauqua University's summer schools, under Vincent and Harper, influenced many U.S. universities to move toward establishing summer courses (Knowles, 1977, p. 47). For example, summer coursework was initiated at the University of Wisconsin in 1887 and at Indiana University in 1889 (Knight, 1952, p. 208). Overseas, the English universities openly admitted borrowing the idea of summer sessions from Chautauqua (Woytanowitz, 1974, p. 23). Most significantly, when Harper took the helm of the University of Chicago, in 1892, he immediately established a regular academic term, the "Summer Quarter," allowing for year round study (Goodspeed, 1916; 1972, p. 143). Knowles (1977) noted that "by 1910 the summer session, usually of six weeks' duration and attended primarily by teachers, had become common in universities around the country" (p. 47). Today, summer course offerings have evolved greatly, up to the point where matriculants can pursue the entire undergraduate and graduate curriculum year-round.

Extension services in American universities, too, were pioneered by Chautauqua University (Brubacher & Rudy, 1976, p. 166; Kett, 1994, p. 182; Bonnell, 1988, pp. 319–320). Previously, extension courses had been experimented with at Queen's College, now Rutgers, the State University of New Jersey (1816); Yale College (1830s); Columbia College (1830s); Harvard College (1840s); Michigan State University (1855);

Kansas State University (1868); University of Minnesota (1881); and the University of Wisconsin (1885) (Grattan, 1971, p. 185). Yet, such efforts never constituted a national movement toward extension services (Kett, 1994, p. 182). Knowles (1977) called America's university extension movement, which started during the late 1880s, "the most significant development of this period for the development of adult education" (p. 47). Coincidentally, Chautauqua University possessed a near monopoly of adult education services nationally. The movement arose as an import from England, where hugely popular university extension had begun during the early nineteenth century, particularly lecture and tutorial courses (Morton, 1953, p. 5). Herbert Baxter Adams, a distinguished Johns Hopkins University historian, successfully pushed for the English system of extension in this country through his speeches and writings around 1887. Earlier, Adams had been active in Chautauqua. John H. Vincent had also visited England in 1880 and 1886, where he observed university extension courses in operation. Vincent believed that Chautauqua University ought to attempt extension services in the United States. A reluctant Harper got aboard the project in 1888, when Herbert Baxter Adams, Richard T. Ely, Frederick Starr, and Harper himself were selected by Vincent to plan Chautauqua's extension program (Woytanowitz, 1974, pp. 24, 27–29).

In 1888 William Rainey Harper organized the College of Liberal Arts Extension Faculty. At its height, in 1892, 168 lecturers (including at least 19 college and university presidents) from 50 institutions, were available to thousands of CLSC and other interested groups around the nation. Harper targeted cities that had no universities to offer courses to the public (Woytanowitz, 1974, pp. 27–28; Morrison, 1974, p. 49; Bonnell, 1988, pp. 153–154, 319–320). Chautauqua University also appears to have been the first institution to award academic credits for extension courses (Bonnell, 1988, p. 319). "The plan," according to Morrison (1974), "called for lectures in sequence developing single topics and supplemented by quizzes, syllabi, and questions to be answered at home and submitted to the lecturer for criticism" (p. 49). Chautauqua also trained prospective extension lecturers from around the country during the summer. Importantly, "Chautauqua University hosted consecutive annual national summer conferences on university extension at Chautauqua for at least four years, assumed national leadership in the extension movement, and gave it a home in the American university" (Bonnell, 1988, pp. 154, 319). After 1892 Chautauqua University's direct leadership declined when competing universities, libraries, and agencies spread the university extension movement across the United States (Grattan, 1971, p. 186; Knight, 1952, pp. 212–213). Nevertheless, further national leadership was provided by Chautauquans-turned-university presidents William Rainey Harper of the University of Chicago (1892–1906) and George E. Vincent of the University of Minnesota (1911–1916). Likewise, Chautauquan Richard T. Ely, a prominent Johns Hopkins University economist, was recruited by the University of Wisconsin in 1892 to organize statewide extension services (Kett, 1994, p. 186). Later, the Harper-inspired University of Wisconsin president, Charles R. Van Hise (1904–1918), and the state legislature revived the extension system as a major feature of the "Wisconsin Idea" (Bonnell, 1988, pp. 255–257).

Ultimately, the sire of today's vast, multibillion dollar network of cooperative agricultural extension services, off-campus courses, university outreach programs, and distance learning technologies in America is Chautauqua University. Just as Chautauqua extended university services to both rural and urban areas when the United States was entering its industrial period, now colleges and universities are striving to extend professional and vocational courses of study, far and wide, as the United States enters the postindustrial era.

The Chautauqua Press (founded in 1880) pioneered the university press in America. Subsequently, William Rainey Harper incorporated this Chautauqua University innovation as a key part of his 1892 plan for the University of Chicago—the exemplary University of Chicago Press (Gould, 1961, pp. viii, 55–63; Bonnell, 1988, pp. 227–228). There were only two genuine university presses of earlier origin. The first was the far-sighted Cornell University Press (1869–1884), under President Andrew White. The other was the Johns Hopkins Press (founded in 1878), which focused on publishing and disseminating scholarly books and journals (Sears, 1959, pp 3–4). Chancellor John H. Vincent's (1886) mission for the Chautauqua Press anticipated the comprehensive, modern university press that Harper would bring to fruition at Chicago:

> "The Chautauqua Press," which embraces all publications, periodical and permanent, issued under the auspices of the Chautauqua University in any of its departments.
>
> "The Director of the Chautauqua Press" is an officer of the University, who has general supervision of its work, promoting unity, co-operation, and improvement. It is part of his duty to study pedagogical literature and apparatus, and to aid the Faculty and Counsellors as they may require in the selection and production of the literature required by the various departments of the University (pp. 40, 207).

At the same time, through the Chautauqua Press, Chautauqua University became a forerunner in advertising and public relations in academia. The goal was the democratization of higher learning. Specifically, the summer university and correspondence courses were promoted by skillfully exploiting the mass media. When young George E. Vincent was appointed assistant editor in 1886, an ambitious publicity campaign was begun, which included the establishment of the Chautauqua Bureau of Newspaper Correspondence. It appears that many newspapers printed articles on the university, free of charge, that began as press releases. Added to that was the publicity generated by the constant stream of distinguished speakers and celebrities visiting Chautauqua. Throughout the university period, the national magazine *The Chautauquan* ran "large monthly headliners" to promote higher studies. For the benefit of students, the Chautauqua Press manufactured perhaps the first inexpensive, pocket-size textbooks and magazines in the industry (Bonnell, 1988, pp. 76–79, 318; Richmond, 1943, p. 111).

Today, over one century later, advertising and public relations in America fall under the generic category of "institutional advancement." Much like Chautauqua University before them, most universities, colleges, and two-year institutions currently advertise through the mass media in order to recruit students to help democratize higher learning and to increase revenues. Since the 1970s, within the exceedingly competitive higher education marketplace, both public and private institutions have continually solicited operating funds from individuals, corporations, foundations, and governmental bodies. Insofar as institutional advancement is now a sophisticated craft, perhaps the recently eroded public trust and confidence in the academic enterprise can eventually be restored through meaningful public relations efforts.

Prototype for Harper's Chicago Plan (1892) and the "Wisconsin Idea" (1904): American Public Service University

Chautauqua University (1883–1892) innovations, as we have seen, were widely copied, nationally and internationally. Inexorably, because the delivery of adult education to the masses was the goal of Chautauqua University, it arose as a prototype public service university (Bonnell, 1988, pp. 326–327). William Rainey Harper and other academic leaders viewed the success of popular higher education ventures as evidence of robust demand for services. Coincidentally, it was the Progressive Era, when the middle class desired to reach out and help less advantaged members of society. Laurence R. Veysey, in his classic study *The Emergence of the American University* (1965), documented the growth of a new and modern type of graduate institution, around the turn of the century. Unique to the world, it combined the ideals of teaching, research, and public service. Unfortunately, Veysey and other university historians have frequently overlooked the Chautauquan bases of Harper's University of Chicago plan (1892) and the "Wisconsin Idea" (1904), which most strongly represented the American public service ideal of the university (Bonnell, 1988, pp. 326–327).

Let us first examine the Chicago episode. When William Rainey Harper was an eminent professor of Semitic languages at Yale University and directing the nationally publicized Chautauqua University, he was an established leader in academia. In 1891 the 35-year-old Harper was recruited by fellow Baptist, John D. Rockefeller, Sr.—the richest man in the world—to become president of the revived University of Chicago, a private Baptist institution. Rockefeller's huge gifts of over two million dollars and hands-off approach to its administration allowed Harper to build a new University of Chicago (Gould, 1961, pp. 27, 29–30, 51, 54–55; Brubacher & Rudy, 1976, p. 185).

President Harper's master plan for Chicago was both sweeping and novel (Brubacher & Rudy, 1976, p. 185). In the words of Frederick Rudolph (1962), "No episode was more important in shaping the outlook and expectations of American higher education during these years than the founding of the University of Chicago" (p. 349). The plan combined superior graduate instruction, faculty research, and public service. It embodied five divisions:

> The University Proper.
> The University Extension.
> The University Press.
> The University Libraries, Laboratories, and Museums.
> The University Affiliations (Goodspeed, 1916;1972, pp. 136–137).

Harper's Chautauqua University experience deeply influenced his revolutionary plan for the University of Chicago, as verified by historians of Chautauqua (Gould, 1961, pp. 62–63; Morrison, 1974, pp. 77–78; Bonnell, 1988, 226–229). In turn, Chicago had a profound effect on America's developing colleges and universities. From the start, Harper instituted the Chautauqua idea of summer sessions, by dividing the entire year into four academic quarters, to include a "Summer Quarter (Knight, 1952, p. 215; Goodspeed, 1916;1972, p. 143). Another important departure that has been attributed to Chautauqua was the Chicago system of major and minor areas of study (Gould, 1961, p. 61). The University of Chicago's division of extension served adults, regardless of background, in the Chicago metropolitan area. Due to his Chautauqua accomplishments, Harper was already a national leader in the university extension movement, and his ambitious program at Chicago gave further impetus to the movement (Woytanowitz, 1974, pp. 55–56). Through its extension services, the University of Chicago offered the first evening classes for credit in America (Cook, 1995, pp. 180–181). Also, within the division of extension, Harper established a correspondence department to serve the world (Goodspeed, 1916;1972, p. 135)—another Chautauqua idea. From Chicago the notion of correspondence study was adopted by other universities, junior colleges, and high schools (Knowles, 1977, p. 39).

The University of Chicago Press was not incidental, but a regular division of the institution. The public usefulness of the press was to be expanded through the dissemination of research and instructional materials (Goodspeed, 1916;1972, pp. 136–137). As described earlier, Harper's mentor, John H. Vincent, emphasized a comprehensive program of scholarly publications through the Chautauqua Press (Vincent, 1886, pp. 51, 40, 207; Gould, 1961, p. 63; Bonnell, 1988, pp. 227–228). Goodspeed (1916;1972, p. 154) pointed out that it was the proven value of the University of Chicago Press that motivated the leading universities in the United States to establish their own presses; these were patterned after Chicago.

Affiliation was yet another Chautauqua University innovation, referring to John H. Vincent's promotion of constructive relationships with outside institutions and agencies—consistent with his theory of adult education. Not surprisingly, President Harper made affiliations a regular division of the University of Chicago (Creese, 1941, pp. 43–44). Affiliation and articulation with high schools, academies, junior colleges, and four-year colleges (public and private) was intended to strengthen secondary and undergraduate education in the Midwest, and it proved successful for twenty-five years, until that function was assumed by the national General Education Board (Goodspeed, 1916;1972, pp. 148–149). Related to affiliation, both Harper and his Chautauqua and Chicago associate, George E. Vincent, made important contributions to the junior college movement. It is more familiar today as the ongoing community college movement. Harper was the first to use the phrase "junior college"; the University of Chicago was the first institution to award the associate's degree; and Harper influenced the establishment of Joliet Junior College (founded in 1904), the first public two-year college (Bonnell, 1988, p. 279; Gallagher, 1997, p. 36).

Currently, affiliation, or even merger, is a trend among university hospitals and allied departments that are geographically close together. With health costs rising, the advantages are the pooling of resources, avoidance of duplicating services, and the strengthening of curricula and faculties. Articulation between colleges and secondary schools, as just noted above, has a long history. Today, state legislatures grapple with such articulation-related issues as how much funding ought to go toward improving the quality of public secondary education, but at the expense of higher education funding, and conversely, how much funding ought to go toward remedial programs in colleges and universities.

Although Harper's Chicago plan is still legendary, its Chautauqua University origins have never been well known. The direct reason for this was Harper's failure to acknowledge, in professional writings and speeches, the influence of Chautauqua upon his higher education philosophy. There are two probable reasons for his silence. First, as a new university president, Harper apparently distanced himself from Chautauqua in order to recruit conservative, eastern professors, who were opposed to radical innovation. Secondly, a developing rift between Harper and the Chautauqua leadership came to a head in 1898, when Harper tried unsuccessfully to merge the far-flung CLSC and the profitable Chautauqua Press with the University of Chicago Press (Bonnell, 1988, pp. 239–247; Storr, 1966, pp 327–328).

The momentous "Wisconsin Idea" (1904–1918) was also fundamentally influenced by the "Chautauqua Idea," yet only a few general histories of American higher education (Brubacher & Rudy, 1976; Westmeyer, 1985) have recognized that there was a connection. During the Progressive Era of the early twentieth century, the University of Wisconsin exemplified most completely the ideal of public service among state universities. This was due to the commitment of the university to serve the entire population of the state (Brubacher & Rudy, 1976, pp. 164–165). Wisconsin's Governor Robert La Follette advanced the "Wisconsin Idea," which rested on a pair of components: the entry of university faculty expertise into state government planning and, secondly, the establishment of university extension services throughout the state (Veysey, 1965, p. 108). Conveniently, the university is located in Madison, the state capital. The president of the University of Wisconsin, Charles R. Van Hise, agreed with and worked toward La Follette's goals. Earlier in his career, according to Brubacher & Rudy (1976), "Van Hise had served as a visiting lecturer at Chicago and was deeply impressed with Harper's Chautauquan ideas of bringing a university to all the people by extending its influence far beyond its own campus" (pp. 165–166).

In reality, an abundance of groundwork for the "Wisconsin Idea" was laid during the 1890s (Veysey, 1965, p. 104). The key figure in that effort was the Chautauquan Richard T. Ely, a famous Johns Hopkins economist, who was recruited by the University of Wisconsin in 1892 to organize statewide extension services. The program was nationally publicized and it was built upon the university's successful tradition of farmers' institutes (Kett, 1994, p. 186; Woytanowitz, 1974, pp. 52, 54).

Concurrently, Ely was appointed as founding director of the School of Economics, Political Science, and History, which prepared students for civil service positions and provided faculty advisory services to the state government (Lucas, 1994, p. 176). Prior to this, between 1884–1891, Ely was profoundly influenced by John H. Vincent's adult education ideas. In fact, he and Harper were planners of Chautauqua University's pioneering system of extension (Bonnell, 1988, pp. 225, 252–254; Woytanowitz, 1974, pp. 27–28).

Under President Van Hise (1904–1918), the "Wisconsin Idea" drew national and international attention. Many other state universities followed Wisconsin by elevating public service as a core mission of their institutions, equal to teaching and research (Brubacher & Rudy, 1976, pp. 166–168). On the heels of the University of Wisconsin, after 1906, the university extension movement in America experienced a tremendous resurgence, however, there was a new emphasis on vocational, rather than cultural, courses (e.g., agricultural and industrial trades). This was a dramatic departure from the English type of university extension (Bonnell, 1988, p. 368; Kett, 1994, pp. 187, 189).

Today, after many decades of university extension serving industrial and agricultural America, the postindustrial age is dawning. A variety of distance learning technologies are emerging: Internet courses; CD-ROM; interactive television; and telecommunity courses. As a result, it is now possible to deliver most of the undergraduate and graduate curriculum via distance learning into living rooms, offices, and neighborhoods anywhere in the technologically advanced world. Indeed, a number of states have launched distance education organizations, such as the Western Governors University (representing over a dozen states), the California Virtual University, and Kentucky's Commonwealth Virtual University. No doubt many policy, academic quality, and curricular questions will soon arise in response to these new educational technologies.

Another prominent institution that was directly influenced by the Chautauqua ideal of public service was the University of Minnesota, under President George E. Vincent (1911–1916). George, who was the son of Chautauqua cofounder John H. Vincent, was formerly an administrator with Harper at the University of Chicago, although he continued on as president of Chautauqua Institution. Like Harper before him in going to Chicago, Vincent transmitted Chautauquan ideas to Minnesota and also became an eminent leader in higher education (Morrison, 1974, p. 83; Richmond, 1943, p. 132). In the words of Guy Stanton Ford, a later president of Minnesota, Vincent's administration "was a second founding of the university." Vincent's main achievements were in establishing statewide extension services (funded by the legislature) and building up a first-class graduate school, including the affiliation of the Mayo Clinic with the University of Minnesota Medical School (quoted in Gray, 1951, pp. 148, 173–178, 210–214).

Circuit Chautauqua: Introduction of Culture to the Rural Masses

Circuit chautauqua, also called traveling or tent chautauqua, were part of the popular culture between 1904 and 1932. Circuit chautauqua were commercial ventures and were not affiliated with either the original or independent Chautauqua. In fact, due to more affordable ticket prices, they soon ran most of the independents out of business. Ironically, by the early thirties, the circuit chautauqua were, themselves, extinguished by automobiles, depression, radio, and other emerging mass media (Snyder, 1985, pp. 85, 89).

These "younger daughters" of the "mother" Chautauqua in New York offered a similar popular program of outstanding lecturers and orators, music, drama, and entertainment to small-town America, and also spread into Canada. It was mainly a Midwestern phenomenon (Hurlbut, 1921, pp. 385–387). A typical circuit comprised roughly sixty to a hundred towns (Horner, 1954, p. 28). Village and farm folk were drawn from miles around for "Chautauqua Week" each summer. Tents were pitched, all hitching posts were utilized, and crowds in the hundreds or thousands filled the tents (Delgaty, 1931, p. 40). The first and largest circuit bureau was the Redpath organization, out of Chicago. It and other bureaus furnished predictably high quality programs at economical prices (Tapia, 1997, p. 25). Circuit chautauqua peaked during the early 1920s, when approximately thirty million persons in twelve thousand communities attended the three- to seven-day sessions. The quality of circuits varied around the nation; those in the South were considered the poorest. On average, circuit chautauqua did offer people a glimpse into higher learning and culture that was not generally available in isolated areas. Indeed, these chautauqua probably exposed a generation of rural youth to the possibilities of collegiate education (Grattan, 1971, pp. 181–182).

As the scenario played itself out, a Northwestern University professor observed that "for more than twenty years these brown-topped tents filled a place in the educational and social life of the more or less rural communities, claimed an immense following and not a little influence" (Delgaty, 1931, p. 40). Tapia (1997) affirmed that the circuit chautauqua lecture program helped to bridge the gap between city and country life, as American society underwent profound economic, political, and technological change (pp. 205, 206).

The Chautauqua Harvest: Signal Transformations in American Higher Learning

The backdrop for the Chautauqua movement was the United States' emergence as a world power, shift from an agricultural to industrial society, and reform of its fledgling universities. It would be difficult to overstate the revolutionary influences of Chautauqua upon higher learning in America. The list of firsts associated with the movement is staggering in regard to the democratization of and permanent structural changes in adult and university education. Indeed, the evidence is weighty enough to compel a historical revision of how the overall higher education system developed during the later nineteenth and early twentieth centuries.

In summary, events began in 1874, when cofounders John H. Vincent and Lewis Miller established the original Chautauqua in western New York as a summer retreat for religious and secular adult education. An immediate success, the institution was copied by several hundred independent Chautauqua across the land. Vincent, in his book *The Chautauqua Movement* (1886), probably articulated the first modern theory of adult education in the United States. Vincent also created the Chautauqua Literary and Scientific Circle (CLSC), 1878–present, which was the first national adult education program, as well as the first major correspondence school, and it remains the longest-running book club. During the later nineteenth century, the independent Chautauqua and the CLSC stimulated the public library movement in small-town America. Chautauqua University (1883–1892), on the grounds of the original Chautauqua, pioneered correspondence courses, summer sessions, extension services, and the university press in American higher education. Deeply influenced by Vincent, President William Rainey Harper incorporated many Chautauquan innovations in his master plan for the University of Chicago, in 1892, most notably extension services, summer sessions, and the university press. Immediately, Chicago became a great and most influential graduate institution at a critical time in the development of U.S. colleges and universities. The "Wisconsin Idea" (1904), too, was powerfully linked with Chautauqua in that the University of Wisconsin established statewide extension services, and President Charles R. Van Hise was influenced by Harper's Chautauquan ideas. Similarly, at the University of Minnesota, President George E. Vincent (1911–1916), son of John H. Vincent, implemented statewide extension services. Thus, Chautauqua University's impact on the Universities of Chicago, Wisconsin, Minnesota, and others ultimately led to the adoption of the public service ideal as a core mission of the American university—today being adopted by universities worldwide.

The movement closed with the circuit or traveling chautauqua, which introduced cultural refinements to millions of folks in small towns of North America, during the summers between 1902 and 1932. This type of Chautauqua is best remembered today. It helped to bridge the gap between country and city life and exposed a generation of rural youth to the possibilities of collegiate education.

All told, the Chautauqua movement was an international adventure in popular higher learning, whose revolutionary influences remain permanent up to today. Combined with cofounder Vincent's prophetic theory of adult education, emphasizing lifelong learning, the movement foreshadowed the "learning society" predicted for the twenty-first century. Jarvis (1995, pp. 40–41) notes that the learning society of the future may encompass all levels of formal and nonformal education and training, have no barriers, and be learner-based, flexible, and lifelong.

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JE Roland J. Kushner

Curriculum as Strategy

The Scope and Organization of Business Education in Liberal Arts Colleges

The essence of strategic management is that organizations are engaged in continual adaptation to changing environmental conditions and circumstances (e.g., Grant, 1998). In higher education, strategic management decisions span multiple policy areas. For college administrators, variability in internal and external domains, such as funding source, student body, faculty characteristics, and facilities, can all be factors that drive organizational policy, individually or collectively. This article focuses on curriculum as an organization strategy in liberal arts colleges. The central issue I explored is the relationships between curriculum choices, on the one hand, and structure and performance, on the other. An empirical examination of business curriculum in 182 liberal arts colleges follows an introductory discussion of the interplay between curriculum and strategy in general, and in the liberal arts college environment in particular.

Curriculum is strategic in its character for two principal reasons. First, all major internal and external decision domains—resources, markets, internal process, and organizational structure—are affected by curriculum choices. Ultimately, it can be argued, all decisions made by educational institutions are rooted in the content and format of their educa-

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tional program. Second, an educational institution's curriculum can be seen both in a purpose-directed action framework and in the broad perspective that Mintzberg (1988) proposed as an analytic framework for strategy. Mintzberg argued that the construct space of strategy holds more than simply a series of choices made in order to attain overtly stated goals. He suggested that, in addition, strategy includes an institution's position in its competitive environment and its outlook or perspective on the environment. Moreover, he maintained that strategy was not even always purposeful but could sometimes be seen more clearly in retrospect as a pattern of activities. The design and implementation of curriculum policies show "emergent" as well as "deliberate" strategies. This view is consistent with other prominent approaches to strategic management (e.g., Miles & Snow, 1978).

Strategic management in higher education has previously been studied by Chaffee (1984), Chaffee and Tierney (1988), and Hardy (1990, 1996), among others. A review of their work suggests that issues of leadership, financial management, external relations, and infrastructure have been at the center of most previous scholarly analyses of strategy in higher education. In Chaffee's (1984) ten pseudonymous case analyses, the academic program—i.e., curriculum—receives relatively little attention, compared to the emphasis given to linear, adaptive, and interpretive models of how strategy is formed. Similarly, Hardy uses academic institutions in Canada (1990) and Brazil (1996) to show how strategic processes of various types play out in a framework of studying organization culture and the management of the strategic process. Gumport (1987) suggests that departmentalization and the emergence of disciplinary autonomy are powerful forces affecting curricular change.

The emphasis in this study, however, is not so much on the *process* of strategy as on strategic *content*, i.e., what strategic decisions are made, rather than how strategy is decided. Kotler and Murphy (1981) point out that program modification is one element of response to product/market environment in higher education. Among other things, program or curriculum is one way that competitors differentiate their offerings to prospective customers. As students select among institutions of higher education, the appropriate institution type is one element of their choice. The alternatives in the American higher education marketplace—private research universities, public and/or land-grant universities, community colleges, and liberal arts colleges—differ in a number of relevant ways: size, heritage, focus on the baccalaureate, and, in large measure, curriculum. Among these types, liberal arts colleges are a paragon, a distinct social and professional model of higher education. Some elements of this archetype include private status, a history originating in the eighteenth or nineteenth century, and a focus on baccalaureate education using pedagogy oriented to small group learning.

Curriculum is a fundamental element of the liberal educational tradition, in terms both of the content and pedagogy that are included and those that are left out. Certain things belong: traditional liberal arts subjects, such as fine arts, humanities and natural sciences, general (as opposed to applied) study of the social sciences, and a pedagogy that favors small class learning (e.g., Association of American Colleges, 1985; Bonvillian & Murphy, 1996; Crimmel, 1993; Daly, 1992; Gustafson, 1995; Ridley & Gallaer, 1993). But education that is specifically associated with the professions, in particular the profession of business management, is treated as belonging to some other educational paradigm.

Some professional programs, such as those in education or public administration, connect more smoothly to the liberal educational tradition. Both of these broad subject areas lead to the kinds of careers in public service for which the liberal arts college was long expected to train its students. By contrast, business appears to be a foreign subject, both in its intellectual foundation and in its focus on technique. According to Kraatz and Zajac (1997), "If there is one unifying historical normative belief or value held by the various constituents of non-profit, private liberal arts colleges, . . . it is that liberal arts colleges are not intended to be schools for professional, career-oriented training." Gustafson's (1995) commentary is even more specific: "Liberal arts colleges . . . emphasize commitment to social programs in ways that heighten the role of academe as critic of society in general and of business institutions in particular."

In Kushner (1997) it is suggested that this exclusion originates in the heritage of liberal arts colleges, their institutional characteristics, and their market niche in higher education. The tradition and heritage of liberal education, through a combination of inertia and conviction, define the liberal arts as an educational strategy. Some institutional pressures against business education include the preeminence of the professional structure of the liberal arts disciplines combined with prejudices against the higher pay scales reportedly earned by business educators (Matasar, 1986). Additionally, there appears to be continuing market demand for an undergraduate education that deemphasizes functional employment during the undergraduate years, as suggested by slowly rising rates of majors awarded in the liberal arts by all institutional types (Gilbert, 1995).

The paradigmatic view of liberal education may to some extent describe a period of history that ended in the 1970s. It is clear that in recent decades private baccalaureate colleges in the United States have increased the absolute and proportional weight of profession-driven subject matter in their overall curricula (Breneman, 1994; Kraatz & Zajac, 1997). Kraatz and Zajac, using an institutional theory perspective, account for this in part as a result of mimetic isomorphism, through which a college might maintain legitimacy as a member of a changing population. Breneman (1994, p. 139) refers to it as a "dominant strategy" needed for survival.

These studies look at professional programs in general but do not address the composition of business education in the liberal arts context or the question of how business education affects institutional outcomes such as reputation. The central research question of this article is thus framed as an empirical examination of how business—in particular, the disciplines of accounting, finance, management, and marketing—is taught in liberal arts colleges, and how such teaching affects important organizational outcomes. Three separate research questions are addressed in this examination.

First, while there is an impression of within-population uniformity with respect to institutional type, there is variation in curriculum (Breneman, 1994, Kraatz & Zajac, 1997). One purpose of the empirical research is to evaluate actual business curricula in liberal arts colleges, to see how they vary among institutions, and to identify some correlates of between-college variation in strategy. Second, linkages between business curricula and disciplinary mainstreams are explored. Third, although adding professional programs to a conventional liberal arts curriculum represents a departure from tradition, its effect on overall performance and reputation is unknown and thus is also a matter of empirical interest. Taken together, answers to these three questions can help researchers and curriculum planners in higher education understand the role of curriculum in strategic management.

This study addresses these questions using primary data obtained from the catalogs of a broad sample of nationally recognized liberal arts colleges supplemented with secondary data from professional directories. In this way it differs from prior studies done at arm's length using only secondary data. Breneman (1994) used data from the National Center for Educational Statistics and College Board in his statistical analyses; Kraatz and Zajac (1997) similarly use NCES data to measure changes in professional majors from 1971 to 1987. It also differs from Chaffee and Tierney's (1988) and Chaffee's (1984) studies, which consist primarily of case analyses. In this study, data obtained from analysis of college catalogs are at the center of the analysis; supplementary and control data come from directories and published sources.

Subsequent sections describe how the sample of colleges was selected, which data were obtained about each, and what procedures were used to measure the amount of business education. Descriptive data are presented concerning how many business, business-related economics, and applied administration courses are offered in the liberal arts colleges as well as how the business curriculum is organized. Additional analyses show how the presence of a business curriculum is related to variation in organizational factors and how organization performance is related to business education. The article concludes with a discussion of implications for strategy.

Methods

The study examines a group of colleges that are highly representative of the liberal arts paradigm. A sample of 182 colleges was selected. Each was classified as a Liberal Arts I College in the Carnegie Foundation's *A Classification of Institutions of Higher Education* (Carnegie Foundation 1994) *or* was included in any of the *U. S. News & World Report* (*USNWR*) annual rankings of National Liberal Arts Colleges from 1993 through 1996. The full list of colleges is in the Appendix. This group is smaller than Breneman's (1994), which included colleges with less than 60% of degrees awarded in professional subjects. The *USNWR* ratings examine a larger group than the Carnegie listing of Liberal Arts I colleges, because *USNWR* includes institutions that award more than 40% of degrees in liberal arts fields and are restrictive in admissions.

Data on college founding and region were taken from each college's catalog. Undergraduate and graduate enrollment figures for the 1995–96 year were taken from *Peterson's Guide to Four-Year Colleges* (1997). The number of full-time faculty were listed in the annual Report on the Financial Status of the profession 1995–1996 in the March 1996 issue of *Academe*. Each catalog also specified the majors (sometimes called "concentration") that the college offered. Colleges were coded as "elite" if they were in the "Top 25" in the 1993, 1994, 1995, or 1996 *USNWR* rankings. These colleges—42 out of the 182—are marked with an asterisk in the Appendix.

Performance or organizational effectiveness in higher education is a complex, multivariate construct (Cameron, 1986), and designation as "elite" is not a sufficient instrumentation of performance. Kushner and Poole (1996) presented a model in which constituency satisfaction, resource acquisition effectiveness, internal process, and goal attainment were components that each contributed directly and indirectly to overall organizational success. They argued that *ceteris paribus*, measures that addressed multiple activity areas were better than single indicators of an organization's performance. A superior measure, according to this approach, is that published in Breneman (1994), combining financial stability, enrollment, and selectivity, using data collected for 1989–90.

Because a strong reputation is unquestionably a goal that colleges seek to attain, the 1995 *USNWR* ratings themselves provide a second measure of performance. Though there has been substantial criticism leveled in recent years about the validity of the *USNWR* ratings as actual measures of organizational effectiveness (e.g., Rothkopf, 1995), they remain widely accepted measures of reputation, and there is undoubtedly some useful performance-related information content in their rank ordering. Raw *USNWR* rankings range from 1 to 160, while the Breneman rankings range from 17 to 536. The correlation between the Breneman and *USNWR* ratings was 0.799, $n = 125, p < 0.001$.

The integration of the business curriculum with professional scholarship in the various business disciplines was measured in two ways. One was by determining if each college had one or more faculty members who was affiliated with the leading professional group for a particular discipline. Membership information was obtained from published directories of the American Economics Association, American Marketing Association, Financial Management Association, and staff of the American Accounting Association and Academy of Management. The second measure was a binary (yes/no) measure of whether the school was accredited by the American Assembly of Collegiate Schools of Business (AACSB) in 1995–96.

Each course catalog provided data describing the business curriculum. Previous studies on various aspects of curriculum (e.g., Burnett 1997, Frank , Schofer, & Torres, 1994; Whaalen & Wilson, 1991) have similarly used catalog data and have taken course listings at their face value as indicators of the content of the courses. The 1995/96 catalogs were searched for courses relating specifically to business and the administration of other professional disciplines, and these courses were coded and tallied according to the procedures described below.[1] Each catalog was reviewed by two undergraduate students and then by the author to ensure consistent coding across all cases.

The key terms that signalled relevance to business were those describing the economics of the firm and the business disciplines and their subfields. All course titles and descriptions were examined for specific reference to business and/or administration of commercial or professional activities. The search focused in particular on departments and subjects whose nomenclature pointed to business, but all courses in the catalogs were assessed if the courses were available to regular students in an on-campus baccalaureate program. Courses were counted as business education offerings if the title and catalog description suggested that the operation of a business organization was an integral element of the course content. Additionally, courses selected had to carry at least the modal value of credits for courses offered at that school, i.e., if most courses in a catalog earned three credits, then only three- or four-credit courses were counted. Courses fitting this description were then coded on the two dimensions noted: 1) the department in which it was taught and 2) the course content.

The offering department was classified as one of Economics, Business, Economics and Business (or similar nomenclature), or Other. Cross-listed courses were classified as belonging to the business department if they were cross-listed in business and any other department, or as economics if cross-listed in both economics and a department other than business.

Courses were then assigned on the content dimension into one of three broad categories, Business, Business-Related Economics, or Applied. Business courses had an unambiguous focus on decision making in an organizational setting: management, accounting, finance, marketing, or investment (including their subfields). It is important to note here that courses such as Business Communications, Business Ethics, Business Law, Business & Society, Management Information Systems, Operations Research, Organizational Behavior, Organization Theory, and Production / Operations Management were also found in other departments than those with business names (e.g., Mathematics, Communications, Sociology).

The second course content category was entitled Business-Related Economics to reflect the fundamental relationship between economic concepts and business learning. Courses in this category focus on areas of economics in which firm-level decisions are central, such as Industrial Organization, International Economics, Labor Economics (sometimes including collective bargaining), Managerial Economics, and Money and Banking. Some economics courses were excluded: Environmental Economics, Urban Economics, Economic History (though Business History might be included based on the catalog description), Econometrics, and Forecasting (again, depending on the orientation in the course description). Many colleges offered multiple courses in international economic topics, but no more than one per case was counted.

Course offerings in the Applied category address the administration and management of a particular kind of business or organization, not the discipline-specific skills necessary for that function. Thus, physical education administration, nursing management, military organization, and arts administration were coded as Applied courses, while related functional courses on exercise therapy, geriatric care, military tactics, or choral direction were not. However, courses that focused on the finances and management of particular commercial industries such as real estate or insurance were coded as Applied courses. Each course was then assigned to only one cell of the coding matrix shown in Figure 1.

Courses were generally not included in any category if they fulfilled general education requirements for baccalaureate students in other majors, or otherwise fit outside of the criteria described above. Accordingly, introductory statistics and probability, principles of economics, intermediate micro- and macro-economics, and personal or family finance were generally not counted as business courses. Also excluded were internships, practicums, independent study, and non-specified special topics courses; country studies that focused on culture rather than commerce; management or executive development courses restricted to continuing education students; graduate courses; off-campus courses; or courses on Men, Women, and Work, or Race, Gender, and Work, Persuasion, COBOL, introduction to computers, and freshmen seminars. Taken together, these exclusions clarify the business education focus of the courses that were counted, all of which share in-class presentation of business subjects to baccalaureate students.

The structure in which business courses were offered was evaluated categorically. Five different structures were identified to describe how business education was organized within a college's overall department structure. These structure types are described below.

		Nature of Course		
		Economics	Business	Applied
Department Type	Business			
	Economics			
	Economics & Business			
	Other			

FIG. 1. Coding Matrix for Business Courses

Results

Taken together, the 182 colleges constitute a paradoxical institutional population, uniform in some aspects but quite diverse in others. As Table 1 shows, the typical college in the sample fits many of the archetypal standards: it is small, with fewer than 1600 students and 164 faculty, is overwhelmingly undergraduate in its enrollment, has a long history (the mean founding year is 1866), and is structured to allow close contact between students and faculty, with a student-faculty ratio of about 14:1. While 74 (41%) have some graduate, continuing education, or professional programs, these programs capture a relatively small portion of overall enrollment in these schools. All but 4—Purchase College (S.U.N.Y), Richard Stockton College of New Jersey, U. Minnesota at Morris, and U.N.C. Asheville—are private. They are located in 37 states, with the largest concentrations in the Northeast (64) and South (48).

Majors Offered

When the extent and nature of business curriculum is examined, the sample appears much less uniform. Within-group variation in business majors offered is shown in Table 2. As expected, given its stature in the pantheon of liberal arts subjects, over 80% of the institutions offer an economics major, making economics the principle avenue to business education in this group of schools. Yet in other ways the colleges collectively challenge the paradigm. There is a relatively frequent incidence of business education at a level that is certainly higher than implied by either the paradigm or the passages quoted above (Gustafson, 1995, Kraatz & Zajac, 1997). A relatively high number, 120, or 66% of the sample colleges, offer degrees either in business *per se* or in one or more business disciplines. More surprising is that 57, almost one third, give

TABLE 1

Descriptive Statistics for the 182 Colleges in the Study

	n	Minimum	Maximum	Mean	Std. Dev.
Total enrollment	181	178	5493	1550.6	865.3
Undergrad enrollment	182	94	5367	1450.9	770.5
Undergrad % of total	181	40.2	100	93.3	14.1
Founding year	182	1696	1977	1866	49.2 yrs.
Full-time faculty	164	12	264	97.47	57.3
Student-faculty ratio	164	7.12	34.47	14.33	7.1
Elite	42 = 23.1%				
All undergraduate	108 = 59.3%				

TABLE 2
Majors Offered

Major	*n*	% of 182
Economics	151	83.0
Accounting	57	31.3
Business administration	52	28.6
Management	52	28.6
Marketing	8	4.4
Finance	6	3.3
Business	50	27.5
Any business major (from the previous 6)	120	65.9

degrees in accounting, perhaps the most functional and technique-driven of the business disciplines. Majors in business, business administration, and management are also offered at a large number of schools, whereas very few offer majors in finance or marketing.

Links with the Scholarly Mainstream

Because disciplinary identity is a process in curriculum change (Gumport, 1987), an issue closely related to majors offered is how an institution's business education program fits with mainstream curriculum planning and scholarly thinking in the business disciplines and economics. Thus, linkage with professional scholarly organizations is a second gauge of integration with the mainstream, helping to show how specialization and differentiation drive competition in that marketplace. Formal AACSB accreditation is not a widely used strategy by the colleges; only six were directly involved in the accreditation process in 1995–96. Millsaps, Willamette, and Washington & Lee had completed accreditation, and Morehouse, Skidmore, and Union were AACSB candidates (AACSB web site). Accreditation should not define curriculum (an issue on which the AACSB is adamant), but its almost complete absence signals that business education as carried out in the liberal arts college environment may be qualitatively different than it is in its usual university setting. By contrast, economics curricula appear to be substantially similar to their counterparts in university settings.

Table 3 displays the number of colleges in which at least one faculty member was affiliated with the indicated organization. The American Economics Association (AEA) has the largest contingent of affiliated colleges, and affiliation with the other organizations follows substantially the same order as in Table 2. Only in the case of economics is there a statistically significant relationship between major offered and disci-

TABLE 3
College Affiliation with Professional Scholarly Organizations

Organization	*n*	% of 182
American Economics Association	148	81.3
American Accounting Association	63	34.6
Academy of Management	52	28.6
Financial Management Association	37	20.3
American Marketing Association	28	15.4
Affiliation with AoM, AAA, AMA, or FMA	106	58.2

plinary membership. Of the 151 colleges with an economics major, 133 have an AEA affiliation ($X^2 = 26.67, p < 0.0001$), and another 15 AEA members teach in schools without economics majors. In the second most popular discipline (as to both major and affiliation), there is no statistically significant relationship; only 32 of the 57 schools with accounting majors have an American Accounting Association (AAA) affiliation, whereas 31 of the schools that do *not* have a major are AAA-affiliated.

Evidence, then, suggests that in both formal curriculum and faculty affiliation with the disciplines, business education in American liberal arts colleges revolves around economics but freely welcomes business, given that two thirds of the colleges offer a business major. However, outside of economics, business in liberal arts colleges differs from mainstream business education programs in both individual and institutional affiliation with disciplinary professionalism. This difference is paradoxical, arising within a population of organizations that otherwise share many institutional characteristics. Some aspects of the difference are explored below by examining the structure of academic departments and course offerings to see how resources are used and product/market programs are put into effect.

Business Education Structures

"Structure" here describes the departmental framework in which business courses were concentrated. Five alternative structures were identified in the sample:

- ECON-ONLY is the most common type. In this configuration, there is no business department, so business-related courses are taught mostly in an economics department and in other departments (62 colleges, or 34.1% of the sample, had this structure).
- DOUBLE is a type in which the college has separate economics *and*

business departments, so business-related courses can be taught in either of them, or in other departments (*n* = 62, 34.1%)

- COMBINED structure types have a Business and Economics or a department with some similar name that reflects a combination of economics and one or more of the business disciplines (*n* = 41, 22.5%).
- BUSINESS types have all or almost all of their business offerings in a business department (*n* = 7, 3.8%).
- NONE. Ten colleges have no business offerings in any department, most often because they are based on a "great books" or similar pedagogy (*n* = 10, 5.5%).

The structures described above serve as an analytic framework to show that institutions of different structure offer different patterns of business education. The composition of the business education program of each of the four-types of structure in which business courses are offered is shown by using Figure 1 as a template to show group means and standard deviations. Table 4 and the accompanying Figures 2 through 5 present these data and graphs for each structure type. They show the mean and standard deviation (in italics) of the number of courses offered per institution in the entire group for each of the classifications and for all cells of the matrix. The top row and left-hand columns of each table as well as the back and left bars of each figure show the mean totals. Subsequent rows show how those courses are organized into various departments; other columns show how the course type means vary.

The 62 colleges with the ECON-ONLY structure have an average of just over 12 business courses. They also have the greatest weight of economics in their total business offerings (9.26 out of 12.10, or 77%) and the fewest applied courses, reflecting the tendency of the pure liberal arts colleges to avoid professional and vocational education. Consistent with this observation, they also have the smallest number of business courses taught in departments other than economics. This type has significantly fewer ($p < 0.05$) courses in total than any other type.

Another group of 62 DOUBLE colleges have both economics and business departments. This group of colleges offers the most business education, averaging more than 36 courses. Here, the greatest weight (72%) of business education falls onto the business department, but there is also the most program diversity, with substantial numbers of applied courses, courses taught in other departments, and business-related economics courses taught in the economics department.

Colleges in the COMBINED program type have a single economics and business department or department with a similar name. This com-

TABLE 4
Distribution of Business Courses in Liberal Arts Colleges

Structure Type	Number of Colleges	% of Total	Mean *SD* Courses per Department	Nature of Course			
				Total	Business	Economics	Applied
ECON-ONLY	62	34.1	Total	12.01	6.34	4.76	1.00
				5.82	*5.51*	*1.52*	*1.08*
			Economics	9.26	4.27	4.71	0.27
See Figure 2 for a graph of the means.				*4.72*	*4.66*	*1.52*	*0.45*
			Other	2.84	2.06	0.05	0.73
				2.55	*2.31*	*0.21*	*1.11*
DOUBLE	62	34.1	Total	36.28	29.15	3.72	3.41
				14.78	*12.70*	*1.66*	*3.04*
			Economics	4.49	0.82	3.52	0.15
				2.24	*1.32*	*1.47*	*0.35*
See Figure 3 for a graph of the means			Business	26.26	24.90	0.18	1.18
				12.98	*12.02*	*0.50*	*0.35*
			Other	5.52	3.43	0.02	2.08
				4.26	*3.05*	*0.13*	*2.04*
COMBINED	41	22.5	Total	29.37	23.05	3.63	2.68
				8.20	*7.03*	*1.20*	*2.65*
			Econ &	24.39	19.88	3.63	0.88
See Figure 4 for a graph of the means.			Business	*7.09*	*6.78*	*1.20*	*1.47*
			Other	4.98	3.17	0.00	1.80
				3.55	*2.32*	*0.00*	*1.95*
BUSINESS	7	3.8	Total	28.00	24.00	1.14	2.86
				8.00	*7.09*	*0.99*	*0.99*
			Business	24.71	22.14	1.14	1.43
See Figure 5 for a graph of the means				*7.67*	*6.66*	*0.99*	*0.00*
			Other	3.29	1.86	0.00	1.43
				2.05	*1.25*	*0.00*	*1.18*
NONE	10	5.5		0	0	0	0
TOTAL	182	100.0					

bination structure connotes equal recognition of economics as a discipline and business as an application. These colleges have 19% fewer business-related courses than those with separate departments for economics and business (29.37 compared with 36.28). However, they are concentrated much more (83%) in the combined department, suggesting that it is a catch-all administrative framework for most business-related courses. Combined economics and business structures give greater weight to economics courses than do structures with both or with only a business department.

The 7 colleges in the BUSINESS structure type concentrate business

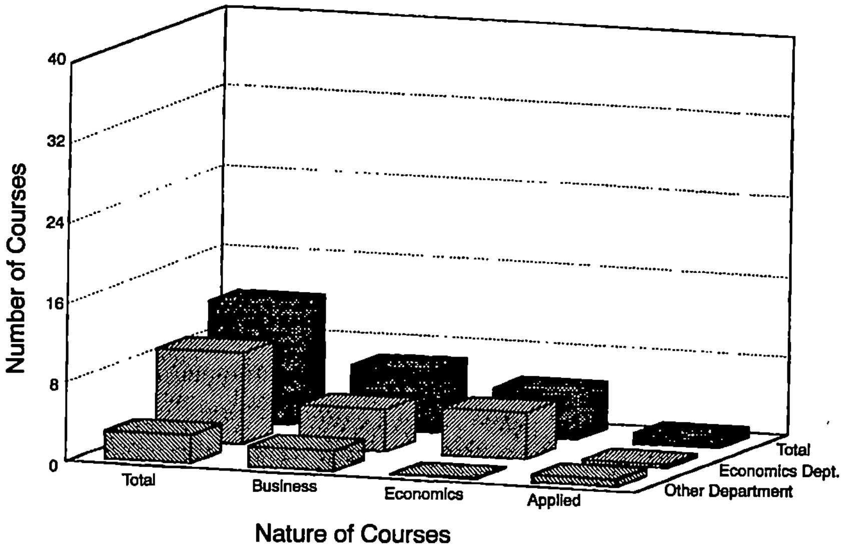

FIG. 2. Mean Number of Business-Related Courses
ECONOMICS Department Only (n = 62)

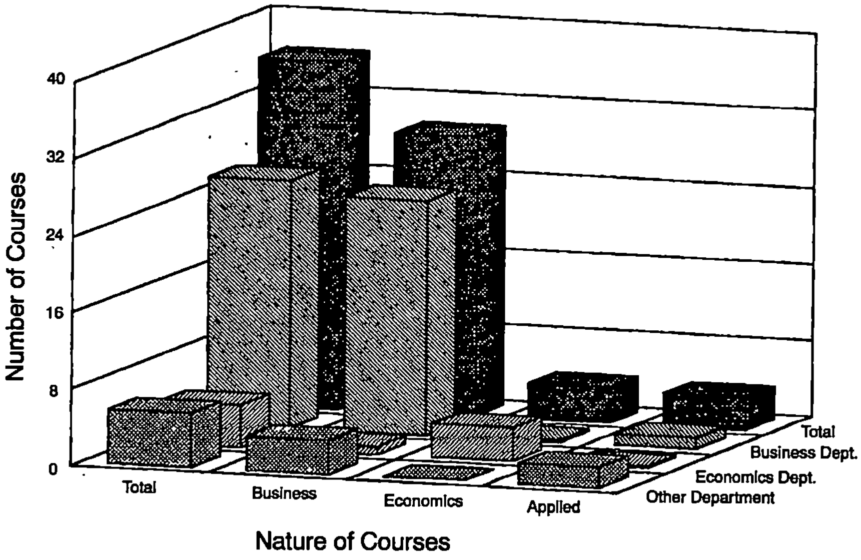

FIG. 3. Mean Number of Business-Related Courses
DOUBLE: Economics Department *and* Business Department (n = 62)

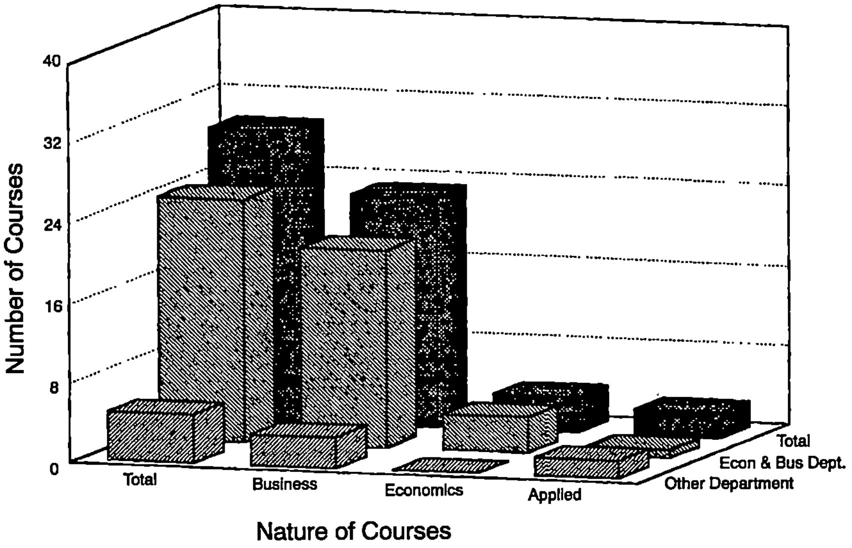

FIG. 4. Mean Number of Business-Related Courses
COMBINED: Economics and Business Department ($n = 41$)

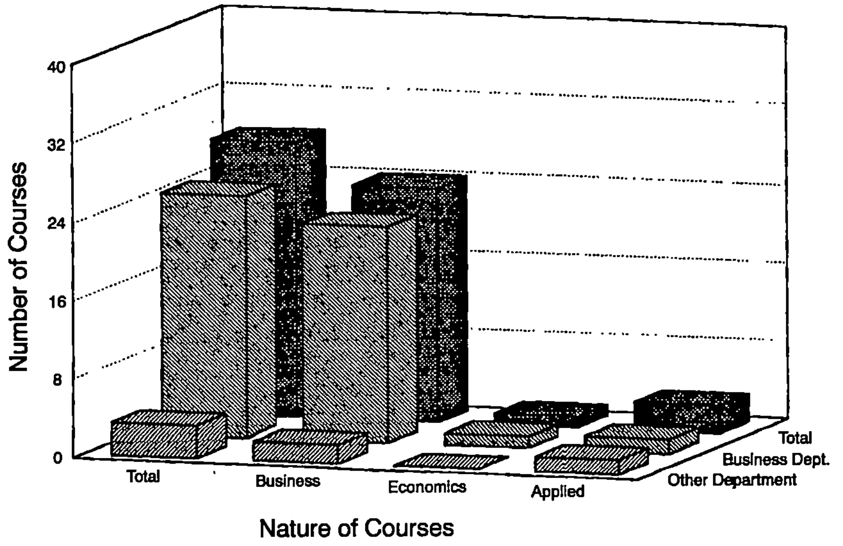

FIG. 5. Mean Number of Business-Related Courses
BUSINESS Department Only ($n = 7$)

education squarely in the business department, while economics courses form a small portion of the total. The small size of this group accentuates the perceived distance between business education and mainstream liberal arts education. Applied courses also have comparatively more weight here, because schools that openly embrace business education also tend to support courses related to professional education. Ironically, those schools in the BUSINESS type offer fewer in total than either those in the DOUBLE category with both economics and business departments or those with COMBINED departments ($p < 0.05$).

Applied Education Offerings

In the aggregate, applied courses represent just less than 10% of the total offerings in business. Applied administration courses have the highest proportional weight in the BUSINESS type and the lowest in the ECON-ONLY type. Figure 6 shows the number of schools offering one or more applied administration courses in various subjects. The two courses most frequently offered illustrate an interesting contrast that shows some of the tensions affecting liberal education: the most common applied course is public administration, the contemporary descendant of a long tradition of liberally educating young people for public service; however, the next most common is recreation management, reflecting the physical education pursuits of contemporary collegians and the allure of professional sports management and marketing. Beyond this dissimilarity between the two most frequent, all but one (insurance industry) of the applied course areas offered by 10 or more colleges relates to administration that is usually carried out in the public or nonprofit environment. This concentration may point to another opportunity for business education in the liberal arts environment to present differentiated offerings.

Correlates of Business Education

A number of plausible explanations can be offered for variation in the extent or amount of business education, independent of the organizational structure of course offerings. Some factors that may provide explanatory insight include macro-level organizational factors such as total enrollment, specialization in undergraduate education, faculty size, and age. Arguably, colleges closer to the liberal arts paradigm (elite, older, and purely undergraduate) should have fewer business course offerings, whereas larger institutions are expected to have more business courses.

These possible relationships were tested using an OLS regression, with the total number of business courses as the dependent variable. Independent variables and their expected signs are as follows:

Variable	Age	Enrollment	Faculty	All Undergrad (dummy)	Elite Status (dummy)
Expected sign	–	+	+	–	–

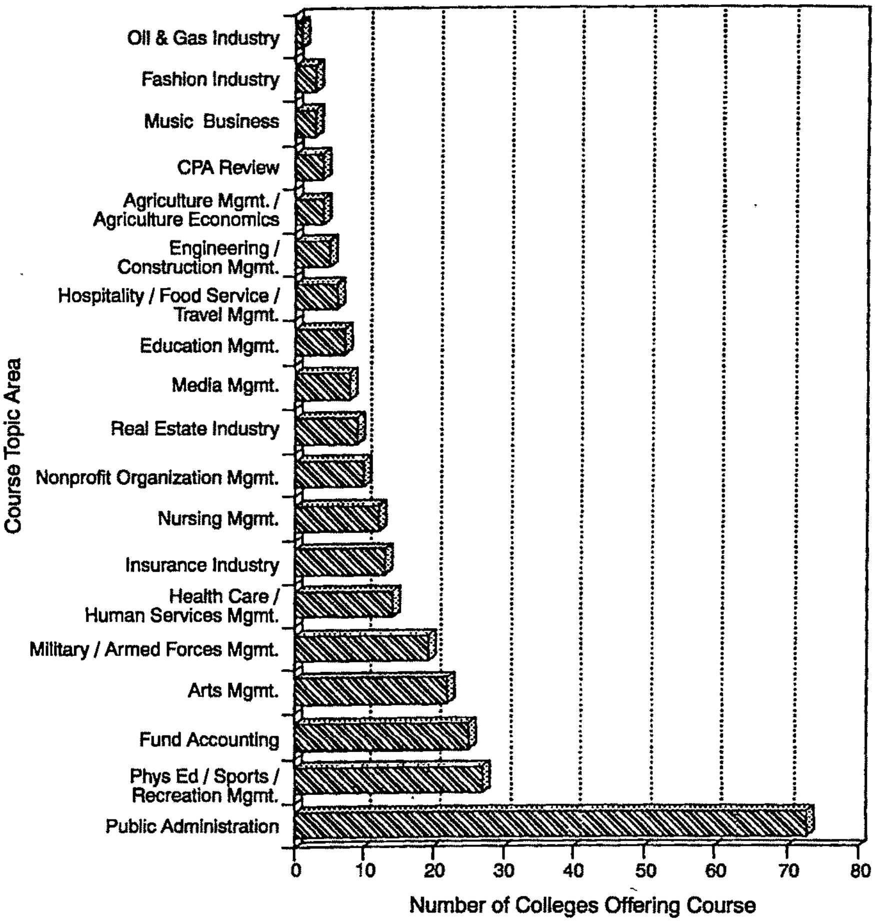

FIG. 6. Courses in Applied Administration

The actual regression results are as follows:

Variable	Intercept	Age	Total Enrollment	Faculty	All Undergrad (dummy)	Elite Status (dummy)
Estimate	16.71	0.03	0.01	-0.18	3.36	-9.55
t-value	3.68	0.02	0.00	-4.96	2.03	-3.62
p value	0.0001	0.1297	0.0001	0.0001	0.1008	0.0004

Adjusted $R^2 = 0.378$, $F_{(5,157)} = 20.66, p < 0.001$

The parameter estimates support some, but not all, of the expected relationships. As expected, the relationship between elite status and total business offerings is negative and statistically significant. The more an institution is focused on undergraduate education, the greater its tendency to teach business. However, larger faculties are associated with fewer business offerings, though to a much lesser degree. The opposite signs of these results suggest possible tensions between student and faculty objectives in undergraduate education in these colleges. The age of the institutions does not contribute much explanatory information, given the size and significance of its parameter estimate.

In order to estimate the relative impact of these correlates, elasticities—which express change in percentage terms—were calculated at the means. Elasticities with respect to a particular correlate are calculated by multiplying the parameter estimate for that correlate times its mean, and dividing that product by the average number of business courses.

Thus, the elasticity at the mean of business courses with respect to new faculty is calculated as (–0.18 * 97.47) / 24.16 = –0.726 (97.47 is the mean number of faculty members from Table 1, and the mean number of business courses is 24.16). This can be interpreted to mean that a one percentage increase in faculty may generate a decline of 0.726% in an institution's number of business course offerings. The same calculation yields an elasticity of business education courses with respect to undergraduate enrollment of 0.025 and of elasticity with respect to institutional age of 0.161. Overall, the model explains about 38% of the variation in the dependent variable. Variations on this model were run to explore whether non-linearities in either undergraduate percentage of enrollment or faculty size were associated with business offerings; none of these relationships were significant.

Performance and Reputation Effects of Business Education

The finding that elite status is associated with fewer business courses leads to the third research question regarding the effect of business on measures of both performance and reputation. Two such outcome measures are used here: the *USNWR* rankings, which more accurately are reputation ranks, and the more comprehensive rankings done by Breneman (1994). These two performance measures are dependent variables in stepwise regression models where total business courses, total enrollment, and full-time faculty are independent variables. Regression results are in Table 5.

These results should be interpreted carefully, because the rankings assign the lowest number to the strongest performer. Consequently, positive regression coefficients indicate weaker performance or reputation; whereas negatively signed coefficients are associated with improved performance or reputation. Both regressions show strong associations. In the first regression, predictor variables enter in this order: elite status, total business courses, full-time faculty, and enrollment. In the second regression, elite status was not used because it is defined as being in the

TABLE 5 (a)

Stepwise Regression of Breneman Ranking on Business Courses and Organizational Factors

Independent Variable in order of entry	Parameter Estimate (Standard error)	R^2	ΔR^2	p
Elite status	–81.296 (17.42)	0.464	0.464	< 0.001
Total courses	3.090 (0.63)	0.569	0.105	< 0.001
Full-time faculty	–1.525 (0.31)	0.655	0.086	< 0.001
Total enrollment	0.062 (0.23)	0.675	0.020	< 0.01
Intercept	256.802 (22.55)			< 0.001
$F_{(4,113)}$	58.86			< 0.001

TABLE 5 (b)

Stepwise Regression of USNWR Ranking on Business Courses and Organizational Factors

Independent Variable in order of entry	Parameter Estimate (Standard error)	R^2	ΔR^2	p
Full-time faculty	–0.713 (17.42)	0.399	0.300	< 0.001
Total courses	1.400 (0.24)	0.581	0.181	< 0.001
Total enrollment	0.023 (0.01)	0.601	0.020	< 0.05
Intercept	84.723 (9.02)			< 0.001
$F_{(4,113)}$	57.26			< 0.001

top of the *USNWR* rankings. Controlling for the other factors, business courses are therefore associated with lower placement in both the *USNWR* and Breneman rankings. Because the Breneman rank is an unweighted index of three measures and technically could range from 3 to 636, compared to the *USNWR* range of 1 to 140, the relative size of the estimators should not be overinterpreted. Though the order of entry is slightly different, the magnitude is similar, given the different scales of the two rankings. Nonetheless, taking into account the other factors in the regression model, it is clear that performance/reputation measures are lower for colleges with larger business education components in their curricula. It is interesting to note that larger enrollment is associated with lower performance/reputation ratings, while additional faculty is associated with higher ratings. The essential consistency between the two sets of rankings is demonstrated by the strong improvement in the Breneman ranking (more truly a performance than a reputation measure) when elite reputational status is added.

Summary of Empirical Results

The research questions posed in this study can be answered by summarizing the key results of the empirical analysis. Even though the study of economics is the most common avenue to business education in nationally recognized liberal arts colleges, business majors are offered by a majority of the colleges. Aside from economics, however, scholars and programs predominantly work outside of the various disciplinary mainstreams. Colleges structure their business course offerings in one of five distinct ways, ranging from no business courses at all to fully-developed business programs with their own departments. In most cases, there are courses in "applied administration" areas, concentrated in public sector activities. As expected, business education is not associated with elite status. In general, business education is associated with lower performance and reputation rankings.

Discussion

It was stated at the outset that curriculum is a critical element of strategic choice for liberal arts colleges. It is customary to attribute much of the archetypal liberal arts college strategy to the traditions of that kind of institution, but traditions evolve too slowly to be detected through a cross-sectional study. This study has shown that variations in curriculum are associated with a number of other important policy variables that executives in liberal arts colleges can more actively manage and that sector traditions are not the only strong influence on curriculum. Course content, organization structure, and student and faculty recruiting are decision areas that administrators can manipulate to achieve chosen educational (and institutional) results from curriculum.

For these best-known institutions this study has shown how business content connects a wide variety of subjects. The fact that the commonality is not always explicitly recognized confirms Mintzberg's (1988) notion that strategy can be emergent as well as deliberate. Correspondingly, it can become more deliberate when administrators and curriculum planners try to shape future curricula in ways that may differ from what tradition demands. The snapshot of these institutions in the mid-1990s does not reveal the dynamics or internal processes that have gotten them to this point. Inertia as a factor in organization decision making and path dependence as a process suggest that institutions with tenured faculty have to find things for them to teach, even if the curricular premises under which they were hired in the distant past no longer hold true. Moreover, it does not stretch the imagination to suggest that resource-poor institutions may see business education as a prop or subsidy for traditional arts and sciences subjects that are closer to the tradition; in fact, financial forces are often considered as the principal motivators for liberal arts colleges to add business course offerings (Breneman, 1994).

It also appears as if structure, independent of course content, is a strategic management tool for curriculum planners, in that differences in approaches to business education can be associated with structure, independent of content. Colleges have chosen, and can choose, to concentrate business education in a small number of departments or, alternatively, to diffuse it widely throughout various disciplinary departments. At the extremes, two institutional types are seen, both of which are thinly represented in the population of liberal arts colleges. One is so focused on business technique that it excludes economics as an independent discipline. The other type has no business courses, or even economics courses that explicitly address business. Together, however, these two types make up less than 10% of the study sample. A far greater portion—two thirds—offers students explicit business education within the institutional framework of a liberal arts college.

To the extent that strategy represents a match that an organization makes with its environment (Hofer & Schendel, 1978; Miles & Snow, 1978), we can see the variety of strategic management forces at work. Curriculum represents a means of coping with suppliers and customers as competitive forces in the environment (Porter, 1980). On the market side, the presence of business in the small college environment is clearly a marketing tool (though its extent or effectiveness is not evaluated here); business education links a college's curriculum to career opportunities and to professional education, and so it is a way to attract students and their revenues. In addition, curriculum choices affect faculty recruiting and administrators' choice of whether administrators employ disciplinary specialists (or not) and encourage formal or informal affiliations with disciplinary mainstreams (or not).

The effects on actual performance are unclear because unambiguous performance measures are not available. But, a clear "class distinction" is undoubtedly present, with reputational leaders, the traditional elite with prestige brand names, using a strategy of offering little business education. This confirms Kraatz and Zajac's (1997) conclusion that professional education reduces legitimacy. As noted above, there is a clear relationship between reputational leadership, which has a legitimizing effect, and organizational success. For some of these reputational leaders business is a sideline to the more fundamental arts, humanities, and social and physical sciences. Yet this pure liberal arts strategy meets the needs of a tiny market segment; students attending the elite schools in 1995–96 constituted 0.25% of total undergraduate attendance (U.S. Department of Education, 1995).

Indeed, the penetration of business education suggests the development of alternative models of curriculum in the small-college sector of the higher education marketplace. Kushner (1997) suggested an approach to business education that can be entirely consistent with the educational traditions of the liberal arts. One reason that such institutions may want to include business explicitly is that the typical liberal arts college curriculum already contains many courses that are viewed as important components of a modern business education. Courses listed in Table 6 are examples of those taught in "other departments" in the empirical analysis. Though they may lack the structural link of a general or discipline-specific business major, student taking a substantial number of the courses are exposed to the same issues that face students majoring in business. Moreover, they can be taught in a manner close to the liberal educational tradition: in small classes, with a positive and analytic pedagogy, as opposed to a problem-solving and technique-building approach (Kushner 1997). Some colleges—Mount Holyoke, Pitzer, and Denison—have in fact instituted "administrative studies" or "organizational studies" majors or minors to package their enterprise-related offerings. It is interesting to note that strategic management as a subject is likely to be a salient element of the curriculum in such a program.[2]

This study is one of the first to assess the curriculum of nationally known liberal arts colleges from a strategic management perspective. Interpretations of the results should take into account the peculiarities of the empirical analysis. The variable of central interest in much of the ar-

TABLE 6
Business-Related Courses in Non-Business Departments

Department	Business-Related Course Offerings
Art	Advertising Design
Communications	Advertising, Public Relations
Computer Science	Management Information Systems
International Affairs	International Business
Language	Business in a specific national environment
Mathematics	Operations Research
Military Science	Leadership
Philosophy	Business Ethics, Organizations in Society
Political Science	Public Administration
Psychology	Organizational Behavior, Industrial Behavior
Religion	Business Ethics, Organizations in Society
Sociology	Organization Theory, Business Ethics, Organizations in Society

ticle is the total count of business courses, with the pattern into which these courses fall a secondary matter. To accept the conclusions of this article, a reader must accept the coding scheme and its application. Additionally, the analyses require interpretation of the business nomenclature and terminology.[3]

Two alternative approaches might motivate additional empirical study. One is to examine the behavior of this population over time, in order to study the dynamics of strategic change in a time-series rather than a cross-section. With sufficient data, techniques such as cluster analysis and structural equation modeling might be appropriate. These might help to identify strategic types, to supplement the structure type approach used here. With sufficient data, structural equation modeling could help to discern some of the underlying causal relationships between organizational factors and business education, and between these factors and organizational performance. Another approach would be to conduct case studies, a commonly used technique for analyzing curricular and institutional change in small colleges (Breneman, 1994; Chaffee, 1984; Schroeder, 1993). Case analyses are more likely to illuminate the social and political processes that drive these adaptations.

Conclusion

Does business belong in the liberal arts college environment? Conceptually, the answer has always been "no," but evidence shows that this subject matter appears to have been embraced by a sizable majority of the best-known institutions, if not the most prestigious, elite schools. The wider group may teach business based on a multidisciplinary model that joins the subject of business enterprise with the tradition of educational liberality, whereas the smaller elite group offers business education only as an offshoot of economics. The majority of students who attend institutions of this type are able to acquire an undergraduate degree in one or more business subjects.

In terms of competitive strategy, then, curriculum may not be as significant a differentiating factor when students are considering which type of institution to attend, but it is a factor once a student has decided on an institutional type. The other elements of the paradigm, however—size, heritage, private status, pedagogy, and undergraduate focus—demonstrate a strong commonality within the population. In sum, business in the liberal arts setting need not be treated as antithetical to the mainstream but can be embraced as long as it is done in keeping with other institutional traditions. It provides a means for colleges to compete amongst each other, while they compete with other institutional forms using other organizational features. Competing in this manner may enable them to respond to demand, by attracting students who are interested simultaneously in business education and the small-college setting.

APPENDIX

Colleges Examined in the Study

Agnes Scott	GA	Blackburn	IL
Albion	MI	Bowdoin*	ME
Albright	PA	Bryn Mawr*	PA
Allegheny	PA	Bucknell University*	PA
Alma	MI	Carleton*	MN
Amherst*	MA	Carroll	WI
Antioch	OH	Centenary College of Lousiana	LA
Augustana	IL	Central	IA
Austin	TX	Centre	KY
Barat	IL	Chatham	PA
Bard*	NY	Chestnut Hill	PA
Barnard*	NY	Claremont McKenna*	CA
Bates*	ME	Coe	IA
Beloit	WI	Colby*	ME
Benedictine	KS	Colgate*	NY
Bennington	VT	College of the Atlantic	ME
Berea	KY	College of Christendom	VA
Bethany	WV	College of the Holy Cross*	MA
Birmingham-Southern	AL	College of Mt. Saint Vincent	NY

College of St. Benedict	MN
College of Wooster	OH
Colorado*	CO
Concordia College at Moorhead	MN
Connecticut*	CT
Cornell	IA
Davidson*	NC
Denison	OH
DePauw	IN
Dickinson*	PA
Drew	NJ
Earlham	IN
Eckerd	FL
Emmanuel	MA
Erskine	SC
Franklin College of Indiana	IN
Franklin and Marshall*	PA
Furman	SC
Georgetown	KY
Gettysburg	PA
Goddard	VT
Gordon	MA
Goshen	IN
Goucher	MD
Grinnell*	IA
Guilford	NC
Gustavus Adolphus*	MN
Hamilton	NY
Hamline	MN
Hampden-Sydney	VA
Hampshire	MA
Hanover	IN
Hartwick	NY
Hastings	NE
Haverford*	PA
Hendrix	AR
Hiram	OH
Hobart and William Smith	NY
Hollins	VA
Hope	MI
Houghton	NY
Huntingdon	AL
Illinois	IL
Illinois Wesleyan	IL
Judson	AL
Juniata	PA
Kalamazoo	MI
Kenyon*	OH
Knox	IL
Lafayette*	PA
Lake Forest	IL
Lawrence	WI
Lebanon Valley	PA
Lewis and Clark	OR
Luther	IA
MacMurray	IL
Macalester*	MN
Manhattanville	NY
Marlboro	VT
Marymount Manhattan	NY
Middlebury*	VT
Mills	CA
Millsaps	MS
Monmouth	IL
Moravian	PA
Morehouse	GA
Mount Holyoke*	MA
Muhlenburg	PA
Nebraska Wesleyan	NE
Neumann	PA
Oberlin*	OH
Occidental*	CA
Oglethorpe	GA
Ohio Wesleyan	OH
Pitzer*	CA
Pomona	CA
Presbyterian	SC
Principia	IL
Providence	RI
Purchase College	NY
Randolph-Macon Women's	VA
Randolph-Macon	VA
Reed*	OR
Regis College	MA
Rhodes	TN
Richard Stockton	NJ
Ripon	WI
Rockford	IL
Rosemont	PA
St. Andrews Presbyterian	NC
St. John's	NM
St. John's	MD
St. Lawrence	NY
St. Mary's College of Maryland	MD
St. Olaf	MN
Salem	NC
Sarah Lawrence*	NY
Scripps*	CA
Shepherd	WV
Siena	NY
Simon's Rock College of Bard	MA
Skidmore	NY
Smith*	MA
Southwestern	TX
Spelman	GA
Swarthmore*	PA
Sweet Briar	VA
Thomas Aquinas	CA

Thomas More	KY	Washington and Lee*	VA
Transylvania	KY	Wellesley*	MA
Trinity*	CT	Wells	NY
Union*	NY	Wesleyan College	GA
University of Dallas	TX	Wesleyan University*	CT
University of Judaism	CA	Western Maryland	MD
University of Minnesota at Morris	MN	Westminister	MO
University of N.C. at Ashville	NC	Westminister	PA
University of Puget Sound	WA	Westmont	CA
University of the South*	TN	Wheaton	MA
Ursinus	PA	Wheaton	IL
Vassar*	NY	Whitman	WA
Virginia Military Institute	VA	Whittier	CA
Virginia Wesleyan	VA	Willamette	OR
Wabash*	IN	William Jewell	MO
Wartburg	IA	Williams*	MA
Washington	MD	Wittenberg	OH
Washington and Jefferson	PA	Wofford	SC

* = designated "elite"

Notes

[1] Using these data assumes that (a) courses listed are taught, (b) course contents are as listed, and (c) the same number of course sections is taught of each one. In most cases these assumptions rarely hold together. It can be argued that although the assumptions may not hold in each case, the resulting errors from the first and third assumptions are likely to cancel each other out, leaving the second assumption as a potential source of error. However, the catalogs remain the best indicator of curriculum

[2] Thanks to a referee for noting the relationship between the subject of the article and the curricular content being examined.

[3] Additional information on how this was conducted is available from the author.

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JE Shelly Cunningham

The Nature of Workplace Mentoring Relationships Among Faculty Members in Christian Higher Education

Introduction

Mentoring has been the relationship of choice for professional development in the business arena for many years. A mentoring relationship involves a more experienced professional serving as a supportive and guiding role model for another professional who is less experienced in the field. Mentoring has also become a focus in the educational sphere. Graduate students are encouraged to seek out a mentor. New and junior faculty receive similar messages. Female students and female faculty are advised to solicit the help of a mentor to open doors they may be unable to penetrate on their own. The business world has implemented formal and informal mentoring programs. What is happening in academe?

Importance of the Study

Growing interest in the potential benefits of mentoring relationships has led to an increase in the number of research studies devoted to the topic. Many of these studies focus on corporations and businesses and, in academe, on the relationship between faculty and students (Burke, McKeen, & McKenna, 1993; Dreher & Ash, 1990; Merriam, 1983).

Mentoring as an orientation and training technique for teachers has frequently been used at the elementary and secondary levels; however, it is not known whether intentional mentoring relationships develop among teachers when mentoring is not formalized. Although anecdotal

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reports of mentoring effectiveness may support the promotion of these relationships among faculty members, there is a scarcity of empirical studies. Beginning with earlier reviews and continuing with their own review of the literature, Perna, Lerner and Yura (1995) concluded that there had been little substantial increase in the database of empirical studies found in peer–reviewed journals related to mentoring and career development among university faculty. Few studies have been conducted on the nature of intentional mentoring among university faculty, and none of these academic studies has examined faculty members at schools with a distinctly evangelical, Protestant, Christian orientation (Boice, 1992; Sands, Parson & Duane, 1991; Williams & Blackburn, 1988).

With the emphasis in Christian teaching on the importance of discipleship, a concept closely related to mentoring, it is not known whether faculty at Christian schools apply this concept to any of their colleague relationships. The stress has tended to be on the role of faculty as mentors and models to students, although the colleague relationships are not ignored (Chappell, 1992). One faculty member who attended a conference on "Building Theological Faculties of the Future," challenged his colleagues in the field to consider the integrative roles of mentor and model in their role as scholars to "embody the purposes of theology and education with highest standards" (Stackhouse, 1991, p. 63). Others are holding out the call to their colleagues in academe to become "mentoring communities" (Parks, 1990).

In some states, legislation has been enacted requiring elementary and secondary education teachers to intern with a mentor teacher before receiving their teaching license. A few states are also requiring a similar mentorship experience for aspiring educational administrators (Barnett, 1990). At the university level "performance as a mentor" is recommended as a component in merit evaluations (Cesa & Fraser, 1989). One religious university includes a mentoring component in the promotion requirements for advancement to the rank of full professor (Biola University, 1994). Though faculty share in writing projects, work together on professional presentations, and meet weekly for lunch or coffee, there is little documentation regarding the specific nature, extent, and perceived or real benefit of these encounters.

Purpose of the Study

The purpose of this study was to analyze workplace mentoring relationships among faculty members in Christian higher education. As a replication of the study done by Sands et al. (1991) at a public research-oriented university, the research followed a descriptive design. One of the primary purposes for the replication of the Sands et al. study was to expand their findings about faculty mentoring relationships at a public university by exploring faculty mentoring relationships at several different private Christian college campuses. The research questions in this study, as in the Sands et al. study, included the following:

1. What are the past and current experiences of faculty with respect to mentoring?
2. What is the nature of mentoring between faculty members in this academic setting? Who mentors whom? How often? Under what conditions?
3. What are ideal types of faculty mentors? Which populations prefer which types?

Review and Synthesis of Foundational Domains

Overview of the Construct

Historically, participation in mentoring relationships was a common practice as an aid in vocational development. In the old university, a student learned in the scholar's home, the knight passed on the warrior's skills to a novice, and in the studio the master helped the young artist to develop (Engstrom, 1989). Master-apprentice, physician-intern, teacher-student are often mentoring-type connections (Hunt & Michael, 1983). Unlike serving as a role model, which does not require any direct exchange, a mentor assumes active responsibility for the development of the protégé (Rogers, 1986; Yoder, Adams, Grove, & Priest, 1985). In contrast to other advisory/support dyadic relationships that facilitate access to positions of leadership, "the mentor-protégé dyad appears to be most intense or emotionally charged, hierarchical, parental, exclusionary, and elitist" (Hunt & Michael, 1983, p. 476). Mentoring is seen as providing first, an instrumental or career function (e.g., sponsorship, coaching, corporate culture instruction) and second, an intrinsic or psychosocial function (e.g., serving as a model, a confidant, a friend) (Burke, 1984; Kram, 1983; Noe, 1988; Willbur, 1987; Zey, 1985).

Mentoring in Academe

The benefits of mentoring to individual faculty members, rookie and novice alike, and to the institutions they represent include: acclimation of new faculty to academia, enhanced teaching effectiveness, increased job satisfaction and faculty vitality, scholarly productivity, and faculty retention (Blackwell, 1989; Boice, 1992; Clark, Corcoran, & Lewis, 1986; Moore, 1982; Vartabedian, 1993; Wheeler, 1992). Although the benefits of mentoring are widely discussed, the actual practice of it among faculty may be hindered for a variety of reasons, many of them unique to the academic culture. At most universities, there are no specific incentives for faculty to be mentors. If there are promotion requirements that include mentoring, they rarely reward faculty for being "good" mentors or give them any reason for trying to improve their performance (Cesa & Fraser, 1989). In contrast, "scholarly pursuits evidenced in the receipt of a lucrative grant or the publication of a well-received article or a noted book accrue the highest accolades" (Stratton & Owens, 1993, p. 94).

Even at universities where mentoring is valued and recognized, it is still up to individual faculty members to take the initiative. In a societal culture, and in an academic culture, where enormous value is placed upon individualism, autonomy, and academic freedom, the communal aspects of mentoring may appear threatening or trivial (Parks, 1990).

Perhaps the most common reason cited for lack of participation in mentoring relationships is that of time. When approached with an invitation to participate in a mentoring relationship as mentor or protégé, busy and overextended faculty members may be hesitant to become involved (Daniels, 1983). Some faculty members fear the risk, or the perceived risk, of potential dependency that may be fostered between senior and junior faculty and, as a result, avoid involvement beyond departmental business (Blackwell, 1989).

Of all the potential mentor–protégé dyad combinations in academe, the relationship between professor and student often receives exclusive attention, and many of the mentoring studies in the field of higher education focus on these relationships (Berg & Ferber, 1983; Busch, 1985; Cesa & Fraser, 1989; Knox & McGovern, 1988; Rice & Brown, 1990). Although results from these studies can be useful in understanding the nature of mentoring among faculty, studies specifically examining the extent, nature, and benefits of participation in faculty–faculty mentoring relationships are necessary.

Earlier studies of faculty mentoring relationships isolated the importance of a collaborative or "hands-on" model of mentorship and the resulting outcomes of academic productivity, advancement, and ongoing professional development for the protégé (Blackburn, Chapman, & Cameron, 1981; Boice, 1992; Cameron & Blackburn, 1981; Williams & Blackburn, 1988). Most all of these studies have been descriptive, indicating the exploratory nature of the field as an area for research. One exception was a study in which 25 mentoring pairs were established for the purposes of analysis (Boice, 1992). While supporting earlier findings of improved professional development of mentored versus nonmentored new faculty, it also focused on the dynamics of formalizing the mentoring process.

Since 1988 the English Department at Washtenaw Community College, a two–year college, has established and run its own departmental mentoring program (Croake, 1996). The program has received no institutional support and has focused on pairing new, probationary faculty with tenured faculty. Initial expectations for more intensive contact between faculty mentors and faculty protégés had to be scaled back (for example, adjusting the expectation of 5 class visits to 2 or 3 visits), and some mentoring pairs with apparently incompatible and divergent working styles disbanded; however, several positive results have been observed since the program's inception. Instructional experimentation has increased, new courses have been developed, and team teaching participation has increased. Although it is suggested that the department mentoring program has contributed to these results, no experimental conditions have been established to support or confirm the connection.

In 1992 the college administration at Oklahoma State University initiated a focused approach to mentor junior faculty on all aspects of scholarship (Weber, Engle, & Knaub, 1995). The program evolved from a grantsmanship focus to include additional aspects of scholarship. Participating faculty represented all departments and included the ranks of assistant and associate professor. Utilizing an approach that facilitated faculty socialization in a group setting, faculty scholars met two hours weekly for seven months during the academic year. Senior faculty served as panel discussants, reviewed submitted case statements of the junior faculty, and provided departmental information. After two classes of scholars, the university has found that the program is serving as an effective recruitment tool. They have also observed increased collaboration among faculty, the formation of faculty teams, and positive faculty response toward administrative commitment to the program. Further, after $2.6 million in proposals were submitted by participating faculty, $220,000 in grants were awarded.

Taylor (1992) examined the frequency, characteristics, and importance of mentoring relationships among 477 full-time female nurse academicians at the instructor and assistant levels. Sixty percent (285 subjects) reported having had at least one mentor, while 40% (189 subjects) reported having no mentor in their career development. Almost 80% of the protégés reported that they had an active part in initiating the mentoring relationship. Forty-four percent of the protégés reported that a mentor selected them, and only 21% reported assignment to a mentor as part of a formal mentoring program. The academicians reported the following mentor behaviors as occurring most frequently: "discussion of strategies to handle professional situations (49.1%), observing the mentor in professional situations (44.9%), and providing opportunity for participation in professional activities (40.9%)" (p. 48). Mentoring behaviors involving the scholarly and professional development of the protégé were reported less frequently, and behaviors reported as never occurring were: "collaboration on research (56%), coauthoring of papers (71.2%), and presentation of papers with the mentor (74.7%)" (p. 52).

In their review of the literature, Perna et al. (1995) include one national survey of full-time tenure-track faculty in the field of agricultural education teaching at four-year institutions. A high percentage of faculty (93.7 %) were found to have received mentoring at some point in their career from one or more persons. Mentors were between 8 and 20 years older than the protégé and of similar social class and academic discipline. The frequency of mentoring was highest during the early career stages.

In the Department of Foreign Languages at Illinois State University, senior faculty members are assigned to junior faculty members by the department chair (Berry, 1996). Common professional interests and personal factors are considered in the assignments with a goal to see friendships built and guidance provided. The success of these relationships has been found to depend on the responsiveness of the junior faculty and the conscientiousness of the senior faculty. Overall, Berry concluded that mentoring is best seen as just one of a variety of departmental support factors.

The research described in this article is a replication of a study done by Sands et al. (1991) during the years 1987–1988. Faculty at a public research-oriented university in the Midwest were studied to examine their mentoring practices. In the Sands et al. study, the population included faculty who were tenured or on the tenure track and at the rank of assistant, associate, or full professor during the academic year under study. Out of a total population of 2259 individuals meeting these criteria, a random sample stratified by rank and sex was drawn, consisting of 100 subjects for each of the six rank-sex-cells, except for the population of 57 female full professors who comprised the total population for that cell. The total sample size was 557 subjects (300 men, 257 women). Three hundred and forty-seven questionnaires were returned for a response rate of 64.5%. Specific findings of the Sands et al. (1991) study related to the findings of this study will be presented in a comparative way within the Results and Discussion sections of this report.

Conceptual Framework

Early adulthood marks a shift in developmental research. Instead of reports about year-to-year changes noted in the physical, cognitive, social and personality areas of childhood and adolescence, the focus shifts to more fluid changes observed in the social, family, and occupational areas of adulthood. Adult developmental research tends to study life tasks, life challenges, and life crises adults face. In this research, mentoring was viewed as a key developmental life task for faculty in the early adulthood stage, who generally assume the role of the protégé, and for faculty in the middle adulthood stage, who generally assume the role of the mentor.

Early adulthood is a period of decision making about family and career (Gormly & Brodzinsky, 1993). Young adults are making decisions independent of earlier parental figures and look to other leaders and mentors for guidance (Erikson, 1982). According to Levinson (1978), the mentor relationship is one of the most significant developmental relationships of this life stage.

On the other side of this mentor dyad is generally a person in the middle adulthood stage of life. Middle-aged adults are in a period of reassessment. They are evaluating and reconsidering the choices made during their early adulthood years (Gormly & Brodzinsky, 1993). They experience a heightened awareness of their position within the broader scheme of life's social environment and often perceive themselves as the bridge between the younger and older generations (Neugarten, 1968). Their interests are broadening. Whereas in early adulthood they learned to care about others and grow in the capacity to be intimate, middle adulthood may see a shift in this concern "about" to a commitment "to" take care of these people. Erikson (1982) refers to this outward focus as generativity, in contrast to self-absorption and stagnation. This is a time for the aging young adult to pass on the heritage of mentoring by becoming a mentor to other adults (Levinson, 1978).

In Neugarten's (1968) research of the middle-aged, both men and women claimed to be aware of a responsibility to encourage and develop the younger generation, to create "social heirs." It is this sensitivity and commitment to invest in young people combined with the younger generation's desire for guidance outside of traditional parental figures that brings the two generations together in the shared relationship of mentoring.

Method

This study was designed to gather quantitative and descriptive information on the nature and extent of faculty mentoring relationships. As a replication of the study done by Sands et al. (1991) at a public research-oriented university in the Midwest during the years 1987–1988, the study used a mailed survey to collect the necessary data.

The sample for this study was drawn from the list of 86 schools belonging to the target population of the Christian College Coalition (CCC) as found in *The Peterson Guide: Choose a Christian College,* the official guide to the member schools in the CCC. This list represented a total of 5185 full-time faculty during the spring of 1994.

In order to insure representation of female faculty for survey responses, all schools where less than 25% of the full-time faculty were female were eliminated from the population pool. This left 52 schools. Each school was assigned a number from 1–52 in alphabetical order. These 52 schools were then categorized into four groups according to the total number of full-time faculty employed by the institution. Group A represented schools employing 0–40 full-time faculty; Group B represented schools employing 41–60 full-time faculty; Group C employed 61–80 full-time faculty, and Group D employed 81 or more full-time faculty. All four groups (A, B, C, and D) had 13 schools in their category.

Using a simple stratified random sampling approach, 2 schools were selected from each group for a total of 8 schools representing 577 faculty. To balance the large faculty populations in Group D and to insure a sample large enough to provide a return rate close to 64.5%, 1 additional school was selected from Group A, bringing the sample to 9 schools with a total of 611 faculty.

After the schools were identified, a letter introducing the researcher, explaining the nature of the study, and requesting permission to survey the school's faculty was sent to the presidents of the schools selected for the study. Four presidents returned the response form along with a list of their faculty names; no further contact with the administration was necessary. Five presidents returned the form and indicated the name of a person on their staff to contact in order to obtain a list of faculty names.

Upon receiving the list of faculty, all full-time faculty names were assigned an identification number from 1–611 and entered into a database for the purpose of mailing surveys and tracking follow-up reminders. Survey responses were recorded in a different database identified only by number to insure confidentiality.

Two hundred and ninety-four surveys were returned, along with 4 postcard responses in which faculty said they were unable to complete the survey. Seven surveys were returned without completed information, leaving 287 surveys (47%) usable for the purposes of analysis.

Although the response rate of 47% was below the 64.5% overall response rate in the Sands et al. study (1991), which this study replicated, it was close to the minimum of 50% recommended by Babbie (1986) for data analysis. It was also determined to be a satisfactory response given the nature of the survey, the breadth of the study, and the sufficient number of responses to meet the minimum cell requirements for statistical analysis. The response rate in the present study involved a broader sampling (9 different colleges) as opposed to the 1 university setting used in the Sands et al. study. In contrast to the Sands et al. study, this study included faculty at the instructor level in addition to those at the assistant, associate, and full professor level. This may explain the higher percentage of faculty in the Sands et al. study who had the doctorate as a terminal degree (82%). Demographic and academic characteristics of all the respondents are included in Table 1.

Instrument

The instrument used for this study was an adaptation of a questionnaire developed by the research team of Sands, Parson, and Duane (1991). Only those sections of the Sands et al. instrument dealing with gathering descriptive information about mentoring practices were used in this study. The sections of their instrument relevant to mentoring prac-

TABLE 1
Demographic and Academic Characteristics

		f	%
Gender	Female	98	35
	Male	184	65
Age	Mean—48.4 years Mode—43 years Range—28–72 years		
Rank	Instructor	14	5
	Assistant professor	101	36
	Associate professor	68	24
	Professor	99	35
Tenure status	Tenured	130	46
	Untenured	153	54
College of discipline	Arts & Sciences	157	55
	Professional	96	34
	Religious Studies	23	8
	Others	8	3
Terminal degree	Doctorate	157	56
	Master	121	43
	Bachelor	2	1
Current Responsibilities (50% or more of time)	Administration	25	9
	Teaching	245	86
	Research	1	0.4
	Other	13	5

tices that were used and reported here are as follows: (1) Demographic and Academic Information: sex, age, rank, tenure status, terminal degree, and college; (2) Mentoring Experiences: individual definition of mentor, experiences as mentor and/or mentee, mentoring functions, reasons for becoming a mentor, reasons for not having a mentor, the manner in which relationships begin, responsibility for mentoring, obstacles, problems, and barriers; and (3) Career Pressures: conditions that may inhibit the development of supportive relationships with colleagues.

One section of the Sands et al. (1991) questionnaire contained a list of 29 activities or functions associated with mentoring in the literature. These functions were rated on a Likert scale from 1 (not at all important) to 5 (very important) with respect to "ideal" faculty-faculty mentoring. Because the purpose of this study was to examine the nature of mentoring relationships that exist among Christian faculty, 6 additional activities associated with the Christian practice of biblical discipling as found in the literature were listed along with the 29 mentoring functions. Biblical discipling is a practice with close resemblance to mentoring. The six added functions are as follows:

1. Help in integrating biblical principles with teaching, research, and scholarship;
2. Involvement in studying the Bible with mentoree;
3. Prayer support;
4. Caring relationship—agape love shared;
5. Encouragement to obey the teachings of Jesus Christ as recorded in the Bible;
6. Affirmation about how God is working in mentoree's life.

Four pretest interviews were conducted with faculty known to have expressed interest in the field of mentoring. They represented the disciplines of psychology, nursing, and theology. The purpose of the interviews was to gather general information on their perspective of the relationship of mentoring to discipling among Christian faculty as background to adapting the survey for a Christian population. Conditions that may inhibit or interfere with mentoring relationships developing among faculty were suggested by the interviewees.

After consulting several sources on survey research (Dillman, 1983; Rossi, Wright, & Anderson, 1983; Schuman & Presser, 1981; Sheatsley, 1983; Sudman & Bradburn, 1983), changes were made to the original instrument of Sands et al. (1991) regarding question order, question phrasing, and formatting. These changes were intended to clarify possible confusion and to invite full completion of the survey by the faculty.

A pilot study was run to test the responses to the revised instrument. Three faculty, two men and one woman representing the disciplines of nursing, business, and science, were asked to complete the survey and evaluate its contents. Further changes to instrument phrasing and formatting were made at the suggestion of pilot study respondents.

Data Collection Procedures

After a list of faculty names was received from the selected colleges, each subject was mailed a questionnaire with a return envelope and a cover letter explaining the study. The questionnaires were prenumbered as a bookkeeping device to provide a record of returns to facilitate the mailing of follow-up letters. Participation in this study was voluntary, and the names of faculty returning the survey were recorded using a code number to protect confidentiality.

Implementation procedures followed the recommendations of Dillman (1983) with some modifications. One month after the first mail-out, a postcard follow-up reminder was sent to all recipients. Six weeks after the first mail-out, a second cover letter and questionnaire were sent to all faculty who had not responded (N = 409). Survey responses were entered into a computer database in preparation for analysis by a computerized statistical program. Responses to open-ended questions were studied and summary responses recorded.

Results

Mentoring is not a foreign concept to professors. Similar to faculty in the Sands et al. (1991) study, 212 Christian College Coalition faculty (77%) in this study could identify someone who had helped them in their academic career. However, when faculty were asked to recall a specific faculty mentoring relationship while teaching at member schools of the CCC, the prevalence of mentoring relationships dropped to just 45%. This percentage compares to the 46% of faculty reported by Sands et al. to have been mentored as faculty members. It is important to note, however, that these percentages do not necessarily represent current and ongoing mentoring relationships. The percentage of faculty who are currently mentoring or being mentored may be lower or higher than 45%.

Both this study and the Sands et al. (1991) study had about a 40% representation of junior faculty (instructor and assistant professor levels) and a 60% representation of senior faculty (associate and full professor levels); however, the Sands et al. study did not include faculty at the instructor level, so comparisons are limited. Because mentoring relationships most commonly involve an older, more experienced person working with someone younger (Burke, 1984; Gaskill, 1991; Hunt & Michael, 1983; Krupp, 1985; Levinson, 1978; Settle, 1988), this balance between faculty at the junior level and faculty at the senior level provided a strong base for studying possible existing mentoring relationships and for studying perspectives about mentoring from the point of view of the protégé and of the mentor.

Faculty who were mentored by other faculty were asked about similarities between themselves and their mentors on the basis of gender. Although it was most common for both males and females to report having a mentor of the same gender, it was more common for males than females, as shown in Table 2. To check this variance, a Chi-Square analysis was run to test for significant difference between the gender of the protégé and the gender of the mentor. Statistical analysis yielded significance at the $p < 0.001$ level ($p = 0.0002$). This also supports the findings of Sands et al. (1991), in which men and women protégés were more likely to be mentored by men.

Although the majority of male (82%) and female (77%) faculty mentorees reported having mentors at the associate or full professor level, the percentage breakdowns for each level appeared to vary greatly (see Table 3). Female and male faculty mentorees had about the same percentage of mentors at the instructor and assistant professor level. However, female faculty tended to have most of their mentors at the associate level (44.8%), with a smaller percentage at the full professor level (32.8%). Male faculty had the largest majority of their mentors at the full professor level (59.7%), with only 22.4% at the associate level.

Respondents who reported being in a mentoring relationship (N = 219) were asked to estimate the hours per month they spent with their mentor or mentoree during the regular academic year. The largest percentage (60%) reported spending less than 5 hours per month. Only 21 protégés and 6 mentors reported spending more than 10 hours per month in the mentoring relationship. In the Sands et al. (1991) study, an aver-

TABLE 2

Similarity Between Gender of Mentoree and Gender of Mentor (N = 128)

	Mentor				
	Same Gender		Opposite Gender		
Mentoree	*f*	%	*f*	%	% Totals
Female	38	64.4	21	35.6	100.0
Male	63	91.3	6	8.7	100.0

TABLE 3

Rank of the Mentor by Gender of the Mentoree (frequency and percentage) ($N = 125$)

	Mentor								
	Instructor		Assistant Professor		Associate Professor		Professor		
Mentoree	*f*	%	*f*	%	*f*	%	*f*	%	% Totals
Female ($n = 58$)	1	1.7	12	20.7	26	44.8	19	32.8	100.0
Male($n = 67$)	1	1.5	11	16.4	15	22.4	40	59.7	100.0

age of 10–30 hours per quarter (1–3 hours per week) was devoted to the mentoring relationship.

In addition to the general descriptive items, the questionnaire contained a list of 35 activities or functions associated with "the ideal mentor." Respondents rated these functions using a Likert scale ranging from 1 (not at all important) to 5 (very important). Subjects' responses to this list were subjected to a factor analysis, orthogonal solution, to look for significant mentor typology groups.

A principal components analysis with a varimax rotation was employed, which produced seven factors with eigenvalues over 1.0. A Skree test indicated that a three-factor, or possibly four-factor, model could be adopted. A principle components analysis using the root curve criterion extraction rule was employed next. The root curve criterion extraction produced four factors. Based on the four-factor model of the original study and the root curve criterion extraction of four factors, a four-factor model was selected for this research. This was further confirmed, for Factor 1, Factor 2, and Factor 4 of this study paralleled three of the four factors adopted in the Sands et al. (1991) study. Table 4 lists the four factors and identifies all items with loadings of 0.50 and above. Factors that had less than five items with loadings of 0.50 and above included the next highest loading item (a 0.488 loading in Factor 2 and a 0.439 loading in Factor 4) to provide the fullest possible picture of each factor. Factor 1 is given the descriptor, "Career Guide," which parallels Factor 2 in the Sands et al. (1991) study. "Career Guide" was selected as a descriptor in the Sands et al. study due to the emphasis on professional advancement and visibility indicated by these items. Four items from the original study loaded above 0.50 and are indicated with a "*" in front of the listed function.

Factor 2 is given the descriptor, "Friend," which parallels Factor 1 in the original study. Sands et al. (1991) used "Friend" to best describe the socioemotional, personal and interpersonal dimension of the items with high loadings in this factor category. Two of the items in the Sands et al. study emerged with high loadings in this factor (indicated by a "*"). Additionally, one function that had been added to the instrument, "caring relationship; agape love shared" also loaded above 0.50 and appeared in this factor.

Factor 3 is given the descriptor, "Discipleship Guide." All of the items that emerged in this category were biblical concepts related to the Christian understanding of discipleship. These functions were added to the instrument for this study and were not part of the Sands et al. (1991) study. Five of the six functions added to the instrument produced this factor, all with loadings above 0.700.

Factor 4 is given the descriptor, "Information Source," which parallels Factor 3 in the Sands et al. (1991) study. Items in this category describe the activities of mentors acting as a source of information that protégés need to make it through the professional academic system. Four of the five items in this category are from the Sands et al. study and are indicated with a "*" in front of the listed function. In addition, Sands et al. identified a fourth factor, "Intellectual Guide." This was Factor 4 in their research. It would appear that this fourth factor was the weakest of their factors and was not strong enough to appear in this study. Interestingly, the Discipling Guide factor identified in this study was strong enough to factor in as Factor 3.

In order to evaluate the relationship between the four factors produced in the factor analysis (see Table 4) and the selected variables of gender, academic discipline, and rank, all items with loadings of 0.50 and above (with the addition of a 0.488 loading in Factor 2 and a 0.439 loading in Factor 4) were transformed into four additive scales. Following the procedure employed in the Sands et al. study (1991), each of these additive scales became a dependent variable. The independent variables were academic discipline, rank, and gender. In order to assess the predictive relationship between the factors and these independent variables a multiple regression analysis was employed.

Multiple regression analysis revealed that the relationship between academic discipline and rank of the faculty member and the types of functions and activities considered important in mentoring relationships was not significant at the $p < 0.05$ level for any of the four factors. In contrast, multiple regression analysis revealed that the relationship between gender of the faculty member and the types of functions and activities considered important in mentoring relationships was significant at $p < 0.05$ for Factor 1 ("Career Guide"; $p = 0.0084$), Factor 2 ("Friend"; $p = 0.0339$) and Factor 4 ("Information Source"; $p = 0.005$), but it was not significant for Factor 3 ("Discipleship Guide"; $p =$

TABLE 4
Principal Components Analysis of Ideal Mentoring Functions

Measure and Variable	Factor Loading
Factor One (Original Study Factor Two)—Career Guide	
Advice about research opportunities, grant proposals, or funding sources*	0.810
Review of drafts of papers	0.744
Advice about publication outlets	0.679
Collaboration in research or publications*	0.677
Introductions to persons who could further career*	0.674
Help with skill development in mentoree's professional field	0.649
Fostering of professional visibility*	0.621
Introductions to professional network	0.597
Factor Two (Original Study Factor One)—Friend	
Friendship*	0.823
Emotional support*	0.679
Promotion of an equal & collaborative relationship	0.615
Caring relationship; agape love shared**	0.612
Belief in capabilities	0.488
Factor Three (Not in Original Study)—Discipleship Guide	
Encouragement to obey the teachings of Jesus Christ as recorded in the Bible**	0.830
Prayer support**	0.829
Affirmation about how God is working in mentoree's life**	0.778
Help integrating biblical principles with teaching, research, and scholarship**	0.739
Involvement in studying the Bible with mentoree**	0.719
Factor Four (Original Study Factor Three)—Information Source	
Information source about formal expectations for promotion & tenure*	0.865
Information source about informal expectations for promotion & tenure*	0.849
Information source about school policies/procedures*	0.772
Informal advice and committee work*	0.582
Informal advice about social norms	0.439

NOTE: *Item from original study; **added to instrument, not part of original study

0.7394). Although women are as likely as men to describe their mentors as people who perform both career functions and psychosocial support functions (Dreher & Ash, 1990; Scandura & Ragins, 1993), female protégés, whether mentored by a man or a woman, report more psychosocial functions performed by their mentors than do male protégés (Burke, 1984). Further, comparing the mentoring functions in cross-sex mentoring relationships for women to same-sex relationships, women with a female mentor rated the functions of friendship, support, role modeling, and exploring personal concerns more highly than did women with male mentors (Burke, McKeen, & McKenna, 1990; Gaskill, 1991; Ragins & McFarlin, 1990). It would appear that, even though men and women report experiencing a variety of functions in mentoring relationships, in terms of career and psychosocial functions there are definite preferences; however, these preferences do not seem to extend to the category of discipleship functions.

Discussion of Findings

In comparison to the demographics of the university faculty studied by Sands et al. (1991), which this research was replicating, there were both interesting similarities and differences. Of the 282 people who indicated their gender, males represented 65% of the respondents and females represented 35%. Although this does not parallel the almost equal male/female representation in the Sands et al. study, it does reflect more closely the Christian College Coalition percentages of 59% male and 42% female.

In this study and in the research of Sands et al. (1991), men and women protégés were more likely to be mentored by men. At its most basic level, this could possibly be explained by the fact that more men than women are serving at the rank of associate and full professor. It appears that although female faculty are experiencing male-mentored relationships to some degree, they are lacking the availability of female-mentored relationships. Because the reality is that there are fewer women than men in academe (Perna, Lerner, & Yura, 1995), creative mentoring options for women will need further exploration.

Even though an overwhelming 93% of the surveyed faculty in this study think that senior faculty have a responsibility to mentor junior faculty, less than one-third reported ever having served as a mentor to another faculty member. This could be explained if there were a small percentage of senior faculty represented in this study; however, a larger percentage of total respondents were at the associate or full professor level. It would appear that even though close to 80% of faculty have experienced mentoring and, as a result, should be more likely to become mentors (Busch, 1985), these relationships are not found among faculty. Although such a discrepancy might be expected at a secular institution, this study looked at faculty at Christian colleges that espouse the ideals of service and community. Whereas the career functions of mentoring might remain less noticeably affected by one's religious commitments, it would seem that the psychosocial functions could be highly shaped by one's personal faith. In fact, it might be anticipated that one's religious convictions would invite increased participation in mentoring relationships as one means to fulfill personal and institutional commitments. Schroeder (1993) observes, "Christian faculty members are to be distinguished from secular faculty members by being disciplemakers" (p. 37).

Even though this study suggests that the functions that might be practiced in potential mentoring relationships among faculty members at Christian institutions may be distinguished from those practiced among faculty members at secular institutions, this study did not find the prevalence of mentoring relationships to differ significantly between the two types of institutions. One factor that explains this discrepancy between belief, experience, and practice is the many career pressures experienced by faculty in academe, which may affect not only the development of mentoring relationships, but also the maintenance of mentoring relationships.

Topping the list of career pressures reported by faculty in this study as potential hindrances to mentoring relationships in some way were: "heavy teaching load," "large size classes," "demands from students (outside class)," "committee work," "high task performance expectations [that] leave little time for developing personal relationships," and "responsibilities for my family or intimate network." Out of these top six choices, four were related to items that could potentially be controlled or monitored by the institution (heavy teaching load, large size classes, committee work, and high task performance expectations). The other two were within the personal responsibility domain of the individual faculty member (demands from students outside class and responsibilities for my family or intimate network). Next on the list, following these top six, were two more items that were also institutionally related: "no intentional development or formal training programs for new faculty," and "no institutional value placed on mentoring." It could be that the low percentage of faculty currently involved in mentoring relationships while teaching at Christian College Coalition schools is not so much related to lack of desire or effort to initiate mentoring relationships as it is to lack of personal, departmental, and institutional support in nurturing and maintaining relationships once begun.

Another explanation for the discrepancy between belief, experience, and practice with respect to participating in a mentoring relationship is the possibility that faculty have received their primary mentoring from nonacademic helping relationships, such as relationships formed at church, social clubs, and extended family gatherings, and they have not incorporated these practices into the academic setting. Or, if mentoring is brought into academe, they think primarily in terms of faculty to student relationships. Throughout the years of academic preparation, the primary relationship modeled and experienced is that of faculty member to student. Upon becoming a faculty member, annual reports and performance reviews inquire about efforts made to cultivate relationships with students. Even course evaluation forms often include some component that examines the prevalence of faculty to student relationships. Envisioning faculty to faculty mentoring as a natural and necessary extension of one's role as a faculty member may require a paradigm shift for faculty and some external institutional support to encourage and facilitate the process.

Although a natural response to the need to eliminate possible barriers to the development of faculty mentoring relationships might be to assign mentors to protégés, the effectiveness of this approach for college faculty is largely unknown. In this study, 57% of the relationships were mutually initiated and, as in the Sands et al. (1991) study, 80% of the pairs were voluntarily formed outside of institutional or departmental assignment. Studies of successful mentoring dyads have pointed to the importance of voluntary selection in the choice of a mentor or protégé (Burke, McKeen, & McKenna, 1993; Galvez-Hjornevik, 1986; Johnsrud, 1990). However, more research needs to be done comparing satisfaction levels between mentoring pairs who have been assigned and those who have formed voluntarily. Further, these are not the only options. It is possible for an institution to encourage, inform, and lend support to faculty mentoring relationships while leaving the actual selection process up to voluntary faculty choices.

The multidimensional picture of mentoring functions that emerged in this study supports the various types of mentors found in the literature. Most generally, all of the factors, with the exception of Discipling Guide, fit within the two-dimensional scale commonly found in the literature. Career Guide and Information Source fall within the "career functions" category, and Friend falls within the "psychosocial functions" category (Burke, 1984; Kram, 1983; Noe, 1988; Willbur, 1987; Zey, 1985). However, Sands et al. (1991) observe that "the 'Information Source' type of mentor was not described as a distinct category in the literature that was reviewed and may be a special type relevant to academic life" (p. 189). If this is the case, then the present study, which also used an academic population, supports their hypothesis that this may be a factor unique to mentoring in academe. Further exploration is necessary before making more than preliminary observations.

With respect to ideal mentoring functions identified by faculty, one factor, unique to this study, was identified—Discipling Guide. None of the functions that factored out for this category was found in the original instrument. Each of the mentoring functions listed for this factor was characteristic of discipling and discipleship as identified in the literature. Although aspects of the mentoring functions listed for the Discipling Guide category share some resemblance to the bi-dimensional mentoring subscales of psychosocial functions and career functions, they do not neatly fit into one or the other. It would appear that the mentoring functions identified for this category are unique and distinct. Only one function added to the instrument as a possible discipleship category did not factor out—"caring relationship; agape love shared." Not surprisingly, this function was found in the Friend category. It is possible that it was worded too generally and could, therefore, be interpreted as a possible function found in more than one factor category.

With the initial identification of this Discipling Guide mentoring category found in this study, further research now needs to be undertaken to explore its prevalence in similar populations and the implications that may follow from identifying this particular set of mentoring activities. It would be helpful to explore in depth each of the listed functions in this Discipling Guide category in response to the research question: What do these look like when practiced among faculty? It would also be interesting to explore why the function, "involvement in studying the Bible with mentoree," received a high factor loading of 0.719, but was the function listed last on the list of actually experienced mentoring activities, reportedly occurring in only 13% of faculty mentoring relationships. "Shared spiritual growth goals" was listed by faculty as one of the important considerations in developing mentoring relationships, but there seems to be a gap between what is desired, seen as important, and actually realized in the mentor-protégé relationship. How can this discrepancy be explained? Bringing theory, belief and practice into harmony is always a challenge, and perhaps even more so in the area of one's spiritual faith practices. Although many Christian colleges stress the importance of integrating faith and learning in the classroom, not as much is addressed in the area of integrating faith and learning in interpersonal relationships, especially among faculty colleagues. It would seem that there might be some direct connection between the integration of faith and learning and practice in faculty mentoring relationships and the overflow of these experiences into the classroom and in student relationships.

Analysis of the data revealed that gender of the faculty member was predictive for preferences related to the mentor functions of Career Guide, Friend, and Information Source, but was not predictive for preferences related to the mentor function of Discipling Guide. In the Sands et al. (1991) study, being female was predictive of Career Guide and Information Source, but gender was not a predictor for Friend. The unique element in this portion of the study was that the research was examining faculty members' preferences, not actual practices in mentoring relationships. Assuming that faculty members have some latitude of choice in the selection of a mentor, preferences become an important area of study. Although responses to this survey item could be influenced by previous mentoring experiences, that is, a faculty member may indicate a preference for those mentor functions to which there has already been some exposure, this item was completed by both mentored and nonmentored faculty members.

Even though men and women report experiencing a variety of functions in mentoring relationships, in terms of career and psychosocial functions, they have definite preferences. Further study is needed to explore the reasons behind these preferences and their relationship to gender.

Of the four mentor function categories identified in this study, only one, the Discipling Guide, was not influenced by gender in terms of faculty preferences. It would appear that male and female faculty alike have similar preferences for experiencing the mentoring activities in this category in their mentoring relationships. Neither women nor men are more likely to desire the mentoring activities included in the Discipling Guide category; both equally desire to see such functions practiced between faculty mentors and protégés.

Findings reported here indicate that intentional and effective faculty mentoring relationships formed among colleagues are a possible vehicle to enhance the personal and professional growth and development of the institution as a whole, but more importantly, the growth and development of participating protégés and mentors. In this preliminary study of faculty in Christian higher education, faculty acknowledge the benefits, and advocate the development, of mentoring relationships with colleagues but do not actively participate in such relationships themselves. Faculty need to understand the terms, the stages, the potential benefits and drawbacks, and the functions of both mentor and protégé. Administrators need to address the specific career pressures and professional demands placed on their respective faculties as potential barriers to the development of mentoring relationships. The practice of forming faculty mentoring relationships must become a natural part of the academic culture. The challenge for institutions that are serious about seeing the development of mentoring relationships evolve on their campus, is how to create both a physical and psychological climate in which faculty members have opportunities to interact with each other to such an extent that they can form intentional and effective mentoring relationships.

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Review Essay

Re-Engineering Female Friendly Science, by Sue V. Rosser.
New York: Teachers College Press, 1997. 141+ pp. $56.00 ($25.95)

Privilege in the Medical Academy: A Feminist Examines Gender, Race, and Power, by Delese Wear. New York: Teachers College Press, 1997. 112+ pp. $42.00 ($19.95)

REVIEWED BY ALICE J. DAN, University of Illinois at Chicago
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Most people in the United States agree with the ideal of gender equity, yet like other groups who experience discrimination, women find the progress toward this ideal distressingly slow. In science, continued underrepresentation of women is especially frustrating, because lip service to meritocracy has attracted many women to scientific fields. In these two volumes from the *Athene Series* (of Feminist Scholarship on Culture and Education), Sue Rosser and Delese Wear, two particularly thoughtful authors who are making important contributions to increasing the presence of women in science and medicine, present variations on experiences that are common to women working in science fields. Both authors offer cross-disciplinary and feminist perspectives on how curriculum and policy in education can address issues of facilitating the success of women in science.

The purpose of Rosser's book is to consider the science education reform efforts of the 1990s in terms of their specific impact on women. She grounds her book on her previous work in which she has combined interests in feminist theory and action with her goal to improve the science curriculum for women students. In particular, she draws on her recent experiences as visiting director of the National Science Foundation's Program for Women and Girls within the Division of Human Resource Development, as participant and consultant on several university curricular transformation projects, and as author of the often cited book, *Female Friendly Science* (1990). The topics of her chapters in *Re-Engineering Female Friendly Science* are wide-ranging: she addresses science and technological education from K-12 schooling to apprenticeships in the skilled trades to both coed and single-sex undergraduate and graduate education.

Rosser begins with a review of her six-stage model of curriculum transformation. The model articulates the goal of moving past stage 1, where the absence of women in science is not even recognized, toward stage 6, where science is rebuilt to include women and a diverse group of participants. Rosser then explains how various science education reform initiatives fall along the continuum of her phase model, including national K-12 standards projects, university curriculum transformation attempts, National Science Foundation grant funding policies, and U.S. Congressional legislation on the School-to-Work program. In brief, she finds evidence that most science education reform initiatives note the absence of women and other underrepresented populations in science but fall far short of attempting to rebuild institutions to facilitate women's success in science. Efforts specifically aimed at women and girls typically focus on helping them to adapt and survive in the hostile environment of science, rather than using gender perspectives to inform curricular or policy changes. Rosser contends that true institutional change depends on having a critical mass of individuals in an educational or policy-making unit who understand the complexity of issues that women face in their science education and who also see the need for restructuring science to benefit women.

Rosser offers practical examples and information to assist those who want an introduction to the complex issues that must be dealt with in order to change science institutions. For example, she describes some of the key distinctions between various feminist approaches to facilitating women's success in science. In addition, she offers some of the "how to's" of curriculum and policy transformation by documenting typical site visits as she consults on university curriculum change projects. Further, she provides details on the evaluation results from one university curriculum change project and chronicles the development of legislative policy.

Both Rosser and Wear are committed to nurturing cross-disciplinary dialogue, but from rather different positions. Rosser is a zoologist who served until recently as director of a women's studies program (she is now a dean), and Wear is a humanist working in a medical school, but both are experienced in working as translators between humanists and scientists.

Delese Wear's *Privilege in the Medical Academy* takes a very different approach from Rosser's book. *Privilege* is a more personal, less linear book, using "collective, theorized stories of women's lives [as] legitimate ways to produce knowledge" (p. 2). Wear sees herself as an outsider in medicine who insists on bringing emotionality and subjectivity to an environment where these qualities are believed to be incompatible with rationality and objectivity (which are valued over all). Her stories will be painfully familiar to many women who function in contexts of male privilege: the disempowering experiences of having one's work misunderstood and invalidated, of being praised for the wrong reasons and asked to "tone down" major points, of being invisible and silenced.

Wear's book takes risks, revealing the inner experiences of an outsider, and there is the atmosphere of a detective story as she works with the materials of her experience to deconstruct and understand the workings of medical discourse as it has material consequences in the lives of women as students, colleagues, or patients of medical practitioners. She cites the statistics on the remarkable lack of women in positions of power and authority in medicine, remarkable because medicine is a science field in which women are comparatively well represented. She discusses the lack of understanding of feminism within the medical academy and describes the areas in which problems have been identified and changes begun, such as sexual harassment of women medical students and professional development to increase women in leadership positions. It becomes clear in her articulate presentation why these piecemeal approaches are frustrating as well as welcome; they seem like bandaids on sore spots rather than a diagnosis of the underlying sickness: the lack of institutional consciousness of systemic privilege.

In other chapters, Wear presents the views of medical students on women and medicine, the politics of the field of Medical Humanities, and her own teaching methods. These topics are useful to any woman in the academy, for they clarify the "post-feminist" environment, how to recognize and counter "essentialist biases" and to struggle against racism as well as sexism. Wear is reflective on the dual realities in which so many women professionals live—their privilege to be located in a world that previously excluded women, while that world still excludes much of their experience as *women.* She reports from the trenches, as a woman who resists giving up her reality and must daily encounter the oppressive consequences. Nevertheless, the book ends on a note of hope that "women in the medical academy can both use and break silences, question what appears so natural, and forge connections between the taken-for-granted and the way things could be" (p. 112). Wear's book is indeed a guide enabling women in science to use their own experience to work toward equity.

Together these books represent a snapshot of the current issues for women in science at U.S. colleges and universities. They reflect the project of equity in science as a work-in-progress, and the constantly changing character of the project is partly responsible for the difficulties and gaps in Rosser's and Wear's analyses. Because the potential audiences are at various stages in their understanding of the issues, not all readers will find these books useful. *Re-Engineering* is a more accessible book, especially for those trained in science, and covers a wide variety of examples of programs to promote success in science for women and girls. Unfortunately, in attempting to offer information to those interested in all of these topics, Rosser may be leaving everyone somewhat disappointed and wanting more detailed information. For example, her discussion of the forces at play in a university curriculum change project covers only the surface, giving an overview but missing the critical details necessary for understanding the links between changes in the shape of how science is taught, and women's successes. Wear's book, on the other hand, requires a familiarity with feminist perspectives and a willingness to wade through some choppy, stream-of-consciousness writing, in order to attain the rewards of understanding. Unfortunately, we suspect that few faculty in science departments will take up this challenge. While *Privilege* speaks eloquently to women struggling for survival, it may miss an audience of other powerful players in science.

These two books complement other recent books in a burgeoning field of work on gender in science. *Re-Engineering* adds a sequel to Rosser's earlier work, moving from a conceptual theory of curriculum change to the nuts and bolts of institutional and public policies influencing how science is taught. Her book serves as a good companion to another recent book focused on institutional change for women in science: *The Equity Equation* by Davis and associates (1996). *Privilege* offers an inside view of science and the medical establishment from a feminist-humanist perspective—in contrast to recent examinations of science and its social environment from a feminist-scientist perspective, as in Spanier's *Im/Partial Science* (1995).

Most usefully, these books contribute to creating an understanding of science knowledge, science education, scientific institutions, and science policies as structures within which women work and study. This is a subtle yet critical distinction from previous scholarship, which looked more often at women as individuals navigating through science education and careers. Rosser and Wear focus on re-engineering and transforming science, not women. In doing so, they help us to progress further toward creating a common dialogue, in order that scientists and feminists can speak together about women's lives.

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Book Reviews

The Family Silver: Essays on Relationships Among Women,
by Susan Krieger. University of California Press, 1996.
270 pp. $45.00 (15.95)

MAUREEN E. WILSON, Mississippi State University

Susan Krieger expected to write a book about women and organizations. What emerged instead was an intimate discussion of her own life exploring her feelings on gender, status, family, lesbianism, and her place in academe. As such, *The Family Silver* is a collection of essays that are "at once an intensely individual and emotional set of reflections and a more general sociological study" (p. 1). She intended to contribute to feminist scholarship and teaching, ethnography in sociology, and emerging scholarship in lesbian and gay studies. Her experiences as a woman, a lesbian, and a teacher inform her writing.

The book "focuses on female gender, on how women organize social life, and on how lesbianism encourages us to value the female in ourselves" (p. 2). She wants readers to use the essays to examine the operation of gender in their own lives. Though claiming no universality of women's experience, she does admit to making some generalizations about women. Despite differences of race, class, and culture, Krieger believes women are similar because of the subordinate status they occupy in many contexts.

Krieger writes plainly and emotionally, avoiding the abstract, theoretical, and technical language of the academic style "designed to produce distance and to exclude emotion—to speak from above and outside an experience, rather than from within it" (p. 3). She believes academic jargon is used to compensate for subjects not considered academically legitimate. Endnotes provide a link to a more traditional academic writing style and offer additional resources. Lacking the safety of distance, she admits to a vulnerability in her writing, hoping her essays will be "received protectively" (p. 4). She identifies the intimacy of the essays as their central challenge. Krieger's writing is not without personal and professional risks. Those represented in the book, even with the protection of a pseudonym, may be uncomfortable with what she has written. Her scholarship has not earned her a regular teaching post or tenure. Regardless of those risks, she stresses the need for authenticity and speaking candidly about experiences.

The Family Silver is organized into three parts. In Part One, highly personal essays explore Krieger's relationships with friends, lovers, and family. The first chapter, "Gender Roles Among Women," questions the complexities of gender in her daily life and how gender organizes identity and social relationships among women. She encourages acknowledging the importance of gender and speaking candidly about the difficulties of the female experience. Written after the break-up of her relationship and in the third person, "Becoming a Lesbian," explores her growth through intimacy with another woman and examines relationships among women. She "suggests that lesbian relationships allow women to shed their male-defined skins and to develop their own ways of being women" (p. 6). Krieger believes that lesbianism is a choice, not inborn. The final two chapters in this section consider gender in her family relationships. "The Family Silver," the metaphor that unifies the collection for Krieger, examines things—material and otherwise—that are passed down among generations of women. The essay details a trip taken to settle the affairs of her lover's aunt who had died suddenly. "The Passing Down of Sorrow" is a look at her relationship with her mother. Krieger learned from her mother that being female involves a lot of pain, and this message is evidenced in this portrait of their relationship.

Part Two turns to an institutional focus and Krieger's efforts to understand how gender has influenced her teaching and academic career. In "Hurts of the System" she discusses her pain at spending over twenty years in academe without having been awarded a regular academic job. She questions the role of her gender and the unconventional nature of her work in that situation. "Saying No to a Man" discusses the ramifications of her decision to deny permission to a male graduate student to enroll in one of her courses. She attempts to understand the controversy that ensued from that decision. The final chapter in this section, "Lesbian in Academe," looks at the influence of her lesbianism on her academic career. Though she has often tried to attribute her hurts in academe to external causes, such as her unconventional scholarship or budget cuts, she believes her choice to be a lesbian has had negative ramifications for her academic career.

In the three chapters of Part Three, her course on women and organizations is described. "A Feminist Class" introduces her attempts to overcome the initial resistance of students to see gender. She provides information on lecture topics, readings, and class assignments along with student reactions to these. In "Separatism" she explores efforts to educate students on the need for separate women's organizations and shares her struggle with students who do not agree with her. According to Krieger, the biggest problem for women's organizations is that women devalue what is women's. "Desires for an Ideal Community of Women" considers her own and her students' hope that following a feminist course would create an ideal world and a better and more nourishing community in all relationships among women. She relates that in the final portion of the Women and Organizations course, students read *The Mirror Dance: Identity in a Women's Community* (Krieger, 1983), and she discusses this experience for the class and for her personally.

Although the book can be read in sections or in any order, Krieger begins with the most personal essays. Some readers will find her personal writing style inviting and refreshing; others may be troubled by an assumed interpersonal intimacy in the sharing of details usually reserved for the closest confidants. This, of course, is Krieger's point: We need to shed light on that which is usually held close and rarely confronted in academic writing. And yet, I confess to some discomfort as a reader; the same sort of unease I feel as a guest in someone's home watching a family conflict unfold and feeling as if I did not belong there. Perhaps I internalized too strongly the message from my family not to air our dirty laundry in public. Writing about their troubles, Krieger wants the world to be sympathetic to her mother. Although I understand this desire, the incidents as portrayed did not evoke strong sympathy from me. Oddly, my sympathy stems from the discomfort, embarrassment, or anger I imagine her mother may have felt from that essay.

Krieger's feeling of vulnerability seems apparent to me, and she refers to it many times throughout the text. This sense of vulnerability is vivid in the description of her undergraduate course. Because her work is so personal, criticism of it is also very personal. She is hurt by students' criticism of *The Mirror Dance,* an earlier book of hers that she assigns in class. "When the students criticize this community, they criticize something I am very much identified with" (p. 222). When students reject her call for separatism, women organizing apart from men, she writes, "I feel they are rejecting me" (p. 197).

She also seems to blame herself for situations. "Hearing their complaints, I feel at fault. Why could I not have done better? I think" (p. 224). She relates one occasion when she felt that she had caused a student to fall off her bike on the way to class by upsetting the student with her course.

Other readers may be challenged by an assumed communion indicated by her use of the inclusive pronouns "we" and "us." While acknowledging that all essays would not speak to all women, she hoped readers would be able to identify with some of her experiences, even across differences. Some readers will reject unqualified generalizations such as, "Oneness is what women most wish for, and fear, in their relationships with other women" (p. 226).

The book, or chapters within it, could be useful in various settings. Courses on gay and lesbian studies would find much fodder for discussion here. Those contemplating an academic career might better understand the risks associated with pursuing an agenda that challenges more traditional notions of scholarship and method. Those constructing feminist courses may benefit from insights gained from Krieger's detailed descriptions of her "Women and Organizations" class. Readers interested in issues important to women and women's relationships may be intrigued by some essays.

Difficult and complex issues are presented in a naked fashion. Stripped of the cloak of academic jargon, these essays are honest, vulnerable, and apt to induce an emotional response in readers. Krieger writes in a straightforward manner making her biases and perspectives clear. Not all readers will agree with her, but they are likely to question conceptions of gender and its influence in their lives, personally and professionally. If Krieger's hope is realized, the book will also encourage other women to tell their stories.

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The University that Shouldn't Have Happened, But Did! Southern Illinois University During the Morris Years 1948–1970, by Robert A. Harper. Carbondale, IL: Devil's Kitchen Press, 1998. 338pp. $20.00

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Professor Harper concludes this stimulating and substantive book with a classical Parthian shot, "Thirty years after the end of the Morris era at SIU, his 'University that Shouldn't Have Happened,' has become in state eyes 'The University that Never Did Happen.'" Factoring in the current 15.7% four-year graduation rate at SIU Carbondale (*Daily Egyptian,* 1998), one might be tempted to agree. However, Harper's chronological scope, structure, and synthesis reveal Delyte Morris, who served twenty–two years as president of Southern Illinois University and was the founder of Southern Illinois at Edwardsville and the first president of the SIU System, as an individual of uncommon abilities who helped a great many forgotten people in downstate Illinois develop their human and regional potential.

Southern Illinois is frequently referred to as "Little Egypt." Some scholars have contended that crop failures in the early 1800s in upstate Illinois forced farmers, like the sons of Jacob, to travel to Southern Illinois to obtain grain. Unlike Egypt, downstate Illinois had a thriving coal mining industry. Its small demographic base was distributed in little towns, which competed with each other on many levels. There were jokes that a good thief had only to visit one of these little towns on Friday night to be able to steal the whole town. Why? Friday night was high-school football night in Little Egypt.

The players and their parents represented widely diverse cultures and ethnic backgrounds. These immigrants and their daughters and sons were considered mentally inferior by some scholars of the day, as shown by one contemporary writer's comment: "We can, however, strenuously object to immigration from Italy with its proportion at the lower end of the scale of 63.4%; of Russia with 60.4%; of Poland with 69.9% of Greece with 43.6%; and of Turkey with 41.6%; it is largely from this source that the stream of intelligent citizenship is polluted" (Garis, 1924). Indeed, the August 6, 1920, *New York Times* reported: "Race Riot here (West Frankfort, Illinois) Italian people are being assaulted and their property destroyed." Jim Crow was alive and well in downstate Illinois as well (Angle, 1969). Violence was an all too common occurrence; as a matter of fact, it was a student riot in 1970 that helped bring President Delyte Morris down. Even in the 1990s, the student-led Halloween Riots have been problematic for SIU administrators.

Little Egypt was waiting for its Rameses. In 1948 Delyte Morris arrived at Southern Illinois University in Carbondale. SIU, like many Midwestern universities, had origins in the normal school tradition in 1869. Indeed, most of the students were locals majoring in teacher education and numbering about three thousand. Even as late as the sixties, SIU was called a "suitcase college," because so many students went home on weekends. In 1948 Carbondale, unlike Champaign-Urbana, home of the University of Illinois, was a railroad town with a population of ten thousand with not much to do on a Saturday night.

On August 3, 1970, the board of trustees eliminated the position of "president of Southern Illinois University." By this time, there were over thirty-five thousand students on the Carbondale and Edwardsville campuses. SIU was recognized nationally and was an international higher education player in Asia, Latin America, and Africa. Many individuals referred to SIU as "the downstate industry" for the coal mines had played out, and the farming was subsistence level at best. Yes, Delyte Morris was called "an empire builder" by his adversaries, however, he outplayed the upstate crowd, outmaneuvered Governor Adlai Stevenson, and outtalked most of his adversaries. An entrepreneur no doubt, but he was an educational leader without rivals! He brought faith, hope, and opportunity to southern Illinois. It was his personal touch that made the difference (Mitchell, 1988).

Morris, with the help of an exceptional team, built first Carbondale and then Edwardsville on the basis of service. Campus housing was integrated; a unique partnership was established with Winston-Salem State Teachers College in North Carolina; failed students from other institutions were given a second chance; commuter students were welcomed; disabled students were encouraged to attend; nontraditional students were given flexible schedules; faculty members such as Bucky Fuller and George S. Counts were recruited; graduate and professional programs were developed; technical skills were taught; facilities were enhanced; radio and television stations were created; and public schools were assisted. He was innovative and seized opportunities to develop SIU and the region.

The author explores, examines, and evaluates these topics and more with a style that is interesting, readable, and scholarly. He displays excellent analytical skills in Part 1: The Times, the Setting, the Man and His Support Team, engages narrative abilities in Part 2: the Story, and perceptive predictions in the Epilogue: Morris After SIU; His Legacy. This text should be required reading in all classes attempting to understand higher education and for all alumni during this commemorative year celebrating Delyte Morris's arrival in Carbondale.

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To Mark the Beginning: A Social History of College Student Affairs, by Richard B. Caple. Lanham, MD: University Press of America, 1998. 248 pp. $45.00 ($25.95)

THEODORE K. MILLER, The University of Georgia

Although pieces of historical writing have appeared in texts and journals from time to time, it has been over four decades since the last publication of a historical overview of the field of college student affairs (AKA student personnel in higher education). As I recall, the book *Origins of Personnel Services in Higher Education* (Leonard,1956) was the outgrowth of a doctoral dissertation that reported the evolution of the field from its beginnings to the early twentieth Century. Professor Caple, a scholar-practitioner at the University of Missouri-Columbia, has provided a complement to the earlier work in an attempt to bring the history of college student affairs more up to date. This work, which focuses largely on the first seven decades of the twentieth century, appears to be a labor of love on the author's part designed to provide current generations of student affairs professionals and graduate students with a sense of identity in regard to their chosen field of endeavor. A worthy goal, for an understanding of history can provide future generations with an increased sense of both professional identity and direction and may even enhance practitioner wisdom in a new era.

This small book of approximately two hundred pages is organized into an introduction, five chapters, an epilogue, and an appendix. The introduction and Chapter 1 establish the book's purpose and the early American foundation upon which the field of college student affairs was based. The four chapters of substance cover the Age of Reform (1900 to 1949), the Modern Era (Post-WWII America), the Decade of the Sixties, and the Decade of the Seventies. The Epilogue is a too short closing statement that recognizes the past two decades but does not identify or project issues or trends that might be expected to result from the previous seventy years of professional evolution. The appendix lists professional association leaders and their years of office. Each chapter is sectioned to provide an overview of the social, political, and sometimes cultural characteristics and variables that influenced higher education and its student affairs programs during the eras under review. Typically the chapters begin with a sociopolitical history of the period and follow with the impact it had on the evolution of college student affairs. The key literature of the eras, both public and professional, is identified, as are some of the major players. Too often, however, the reader is left to his or her own devices to comprehend the increasingly complex relationships that exist between the sometimes parallel, sometimes diverse evolutions of the larger society and the much more limited field of college student affairs.

In some ways the book does a better job of summarizing the sociopolitical history of the United States and the complex interplay of social movements, presidential eccentricities, and domestic and international conflicts than it does the evolution of college student affairs as a profession. Although numerous documents generated by and for the profession were identified throughout, too often there was little or no clear connection made to guide readers who had not experienced the era personally. Although as one "who has been there," as it were, I enjoyed being re-exposed to much that was covered, for I remembered, albeit sometimes differently from the author, much of the literature, conferences, issues, projects, and personalities that were reported. I do believe, however, that on several occasions the author overlooked the existence of some important literature and events that clearly deserved recognition. For example, no mention was made of the Hazen Foundation Report by the Committee on the Student in Higher Education (1968), an important monograph that set the stage for student development to become a major force that guides the field of student affairs even today. Likewise, when discussing the literature of professional preparation, the author failed to note either Knock's (1977) edited work, which reported the professional preparation perspectives of thirteen college student affairs faculty members, or the concerted efforts of ACPA (1979) to draft a set of professional preparation standards that culminated in a document that was highly influential in the establishment of the Council for the Advancement of Standards in Higher Education (CAS) that same year. Perhaps it is reviewer bias that notes these shortcomings, but to overlook such important contributions to the profession in a written history suggests that the chronicle is, at best, incomplete, and one wonders what else might be missing.

Comments from doctoral students who read and critiqued the book indicated that the presentation left something to be desired for those who are currently involved in advanced graduate study. They noted, as do I, the tendencies for redundancies to occur throughout, distinct discussions of student affairs history that failed to make essential connections, overly limited syntheses or evaluations of important events, and a general unevenness of the presentation. The latter is particularly noticeable when certain sociopolitical movements were discussed in detail whereas others of import to the evolution of college student affairs were given comparatively short shrift (e.g., sixteen pages for the Nixon years and less than two for those of Ford and Carter combined). Also, especially when dealing with the early history, secondary sources were used almost exclusively. Because of such concerns, this historical presentation of the beginnings of college student affairs practice appears to be less than it could have been. This is unfortunate, because a comprehensive, well-synthesized history of a field of endeavor is an essential characteristic of a profession. Nevertheless, I am glad that I had the opportunity to read this book, even with the flaws noted, because it refreshed my memories of a more than four-decade career in higher education that was largely enjoyable and most personally rewarding.

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To Serve and Learn: The Spirit of Community in Liberal Education,
edited by Joseph L. DeVitis, Robert W. Johns, and Douglas J.
Simpson. New York: Peter Lang, 1998. 170+ pp. $29.95

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The recent growth and interest in service learning during this decade in part may be interpreted as a response to criticism leveled at the academy during the 1980s. National reports such as *Integrity in the College Curriculum* (Association of American Colleges, 1985), *Access to Quality Undergraduate Education* (Commission for Educational Quality, 1985), and *Involvement in Learning* (Study Group, 1984) brought attention to what many perceived as the lack of relevance throughout the undergraduate curriculum. Boyer's 1987 publication of *College: The Undergraduate Experience in America* added fuel to this growing assault when he argued that there is "a disturbing gap between the college and the larger world. There is . . . a parochialism that seems to penetrate many higher learning institutions, an intellectual and social isolation that reduces the effectiveness of the college and limits the vision of the student" (p. 6). Boyer went on to add, "What we urgently need today is a constructive debate about the meaning of the undergraduate college and a willingness to make this part of the educational enterprise more vital and enriching" (p. 7).

In an edited monograph entitled *To Serve and Learn: The Spirit of Community in Liberal Education*, Joseph DeVitis, Robert Johns, and Douglas Simpson have taken Boyer's challenge to heart. The result is a well-written, theoretically framed, and experientially grounded collection of chapters, offering a helpful contribution to the growing body of service learning literature.

In the Introduction to the collected volume, the authors call upon the work of Amitai Etzioni, Richard Guarasci, Benjamin Barber, and especially John Dewey as they explore the theoretical connections between experientially based service learning and liberal education. For example, they pose the question: "What might Dewey, were he alive today, think of service-learning?" (p. 9). The authors then offer a brief but helpful review of Dewey's progressive work on democracy and citizenship, experiential learning, and the role of critical reflection. The authors conclude, "It is fair to say that service-learning offers special opportunities from a Deweyan perspective. A key point, however, is that the projected benefit of any learning experience lies in its instrumental value, or what it makes possible in the future, that is, its potentialities for student growth" (pp. 11–12).

The book represents a collaboration of ten essays on service learning programs situated at liberal arts colleges around the country. Though the programs are diverse in their orientation and context, the individual essays express a common desire to integrate service to the community with liberal learning. A strength of the essays is their use of qualitative data collected from student journals and personal reports.

The book is divided into three sections. Part One includes two essays: "Education for Responsible Citizenship at Drury College" by Eltjen Flikkema, and "The Salem Signature: Self-Discovery and Community Service" by Cynthia Farris and Sidney Kelly. In these chapters, the authors explore service learning programs integrated as part of the general education curriculum at Drury College (Missouri) and Salem College (North Carolina). The approaches to integrating general education requirements and service differ, but common themes nonetheless exist. Students are acknowledged as community leaders and learn to recognize diverse needs, interests, and abilities through a wide range of volunteer possibilities. The authors discuss a need for students to have a range of service opportunities to choose from and identify evaluation as a critical component of effective service learning programs.

Part Two focuses on domestic community service and liberal education. The service learning experiences represented in this section encourage students to participate in a variety of service opportunities incorporated into courses in various departments. In chapters 3 and 4, Richard Guarasci and David Mapstone at Hobart and William Smith Colleges (New York) and Steven Schultz and Stacia Brown at Westmont College (California) discuss how service learning programs at their respective institutions challenge students through volunteer work in diverse communities. Through a variety of experiences, students reflect upon their service as the programs seek to reinforce values, personal understanding and growth, and empathy. In chapter 5, Jean O'Halloran describes how West Virginia Wesleyan connects student involvement in literacy tutoring to the formal curriculum. The program focuses on individual student learning goals and experiences, and students are surveyed at the conclusion of the program as part of an evaluation component. Section Two concludes with chapters 6 and 7, as Oren Davis and Jennifer Dodge discuss Trinity College (Vermont) and Stewart Jackson and Tonya Smothers explore Birmingham-Southern College (Alabama). These service learning programs have a liberational component to them, as students work to serve historically disadvantaged groups. These chapters also provide a transition into the final section of the book in that they raise questions about cross-cultural understanding and the role of students as agents of social change.

Part Three addresses service learning and liberal education in an international context. Daniel Hess discusses Goshen College (Indiana), Barbara Tazewell highlights Saint Augustine's College (North Carolina), and Rick Fairbanks and Tim Foss examine programs at St. Olaf (Minnesota). All three of these institutions send students abroad to immerse them fully in a culture different from their own. A central goal is helping students to develop a global perspective. Challenges surrounding the international programs include cost, faculty support, evaluation, supervision, and health and safety issues.

Two weaknesses of this monograph jump out at us. First, in adopting a liberal perspective, the authors call upon a variety of scholars, some of whom, such as Cornel West, Paulo Freire, and C. Wright Mills, are hardly very liberal; they fall more in the realm of critical, postmodern, or radical social thought. For us, it would have been a welcomed addition had the authors explored the tension between critical/postmodern views of society as suggested by Freire, Mills, and West, and the central theoretical stream organizing the book—liberal communitarianism. Given the series in which the book is published—Peter Lang's "Counterpoints: Studies in the Postmodern Theory of Education" edited by two critical scholars, Joe Kinchloe and Shirley Steinberg—we expected as much.

A second weakness concerns the lack of inclusion of feminist scholars whose work directly speaks to education and the construction of caring selves and communities. It strikes us as quite odd that the works of Nel Noddings (*Caring: A Feminine Approach to Ethics and Moral Education*), Carol Gilligan (*In A Different Voice*), and bell hooks (*Teaching to Transgress*) are not discussed, even minimally, though they offer profound pedagogical and developmental insights relevant to service learning. We continue to be perplexed by the lack of inclusion of women's work on identity and community in the service learning literature.

Our criticism should not be seen as condemnation. *To Serve and Learn: The Spirit of Community in Liberal Education* offers a helpful collection of essays in the area of service learning and liberal education. We highly recommend this book to college and university administrators, faculty, students, and scholars interested in learning more about service learning theory and practice. Joseph DeVitis, Robert Johns, and Douglas Simpson offer a meaningful contribution, and, in the spirit of the late Ernest Boyer, they extend the commitment to creating more vital forms of undergraduate education.

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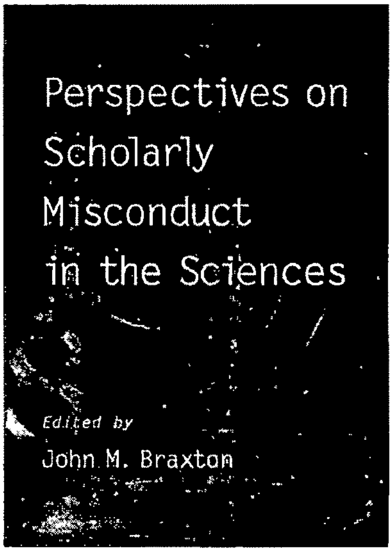
Perspectives on Scholarly Misconduct in the Sciences

Edited by John M. Braxton



For almost two decades, cases of research misconduct have attracted the attention of both the academic community and the lay public. Such attention raises a fundamental question: Who holds responsibility for detecting, deterring, and sanctioning misconduct?

Perspectives on Scholarly Misconduct in the Sciences addresses this question by focusing on such topics as the social control of misconduct by the lay public, the congressional response to misconduct, the role that scientific associations and societies might play in deterring misconduct, the nature of policies and procedures universities have implemented to halt misconduct, how the graduate school socialization process can foster or deter academic malfeasance, and the response of individual academics to wrongdoing.

The book presents a framework for self-regulation, analyzes responses of universities to misconduct, and provides a workable definition of misconduct. It then looks at university-industry research collaboration as a potential source of wrongdoing and at legal issues associated with wrongdoing, finally setting forth a research agenda for studying misconduct.

Now revised and considerably expanded, this book began as a popular special issue of the *Journal of Higher Education. Perspectives on Scholarly Misconduct in the Sciences* is a valuable resource for scholars, university and college administrators, public policy makers, and officers of professional and academic societies interested in the development of policies to prevent scholarly misconduct.

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A Note from the Editor on *JHE*'s Anniversary Issue

The Journal of Higher Education was begun in 1930 with support from the Ohio State University Board of Trustees. From the beginning, *JHE* relied on unsolicited manuscripts, which were reviewed in a variety of ways. The character of those manuscripts, as well as the format of *JHE,* have changed over the decades. The very first article, "The Spirit of the University of Chicago," was the inaugural address of Robert Maynard Hutchins as he assumed the presidency at Chicago. Besides other essays, the Journal included a section reporting the results of recent research studies, a section called "The Reporter," which included news from campuses across the country (a kind of early *Chronicle of Higher Education),* and a book review section. In addition, the early years included "Editorial Comments" from the Editor.

Most essays concerned pragmatic matters, such as dealing with students with inadequate high school preparation, or poor foreign language competence among students. There were also occasional philosophical essays on the ends of education, the meaning of the liberal arts, and so forth. Some of the essays were accompanied with basic statistics, such as test scores of students under an old curricular plan compared to those under a new plan, or the percentage distribution of degrees held by deans over the years. Most articles included few, if any, references to other literature. This basic journal format continued virtually unchanged into the 1960s.

With the assumption of the editorship by Robert Silverman in 1970, articles became much more scholarly, and the editorial comments were dropped. Occasional "Comments" from readers reacting to articles were published, and special issues devoted to a single topic appeared. In addition to Silverman's scholarly bent, the articles reflected the greater so-

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phistication of the field. Ideas could no longer simply be asserted, but more and more, needed to be buttressed by empirical evidence. Departments of higher education had emerged, and a new group of scholarly researchers brought new rigor to the field. One of the results of this increased level of inquiry was the founding of other scholarly journals in the field, notably, *Research in Higher Education,* founded in 1973, and the *Review of Higher Education,* founded in 1977. Other journals begun about this time included *Change* (1969) and the international journal, *Higher Education* (1972). The volume of studies and literature emerging about higher education is reflected in the establishment of the present-day *Higher Education Abstracts* in 1964. In sum, the increased research orientation and scholarly emphasis seen in the pages of *JHE* reflected the changing level of scholarship in the field.

The articles chosen for this special issue were all published during the 1930s. (The idea for an anniversary issue was originally suggested by Managing Editor Ava M. Stinnett. The articles were selected by the Editor with the advice and suggestions of Ava Stinnett, who also made selections for the Reporter section reprinted at the end of some articles.)

This decade was a tumultuous one for American society. Beginning with the Great Depression, the decade saw the election of Franklin Roosevelt, a series of governmental attempts at social reform and economic stimulation, the rise of unions, and great changes in popular culture in films, radio, and books. Internationally, the world-wide economic collapse led to the rise of totalitarian states and ideologies. Some of these changes are reflected in articles and reports in the Journal, whereas others are perplexingly absent. For example, the Reporter section and a steady stream of articles concern the effects of the depression on the finances of colleges. However, there is little on the possible role of colleges in dealing with the challenges facing the general society. Likewise, there is little on the international forces that would soon embroil the United States in World War II. One of the rare exceptions is the Neureiter article on the effects of national socialism on German universities. However, there were trends within higher education that reflected general society's readiness to consider change in its institutions. Some of these experiments survive, albeit in a modified form, such as the Bennington plan described in Leigh's article and the Chicago plan outlined by Hutchins; others can be seen only in their general effects, such as Wisconsin's Experimental College, described in Meikeljohn's book (reviewed by Boucher).

Some topics are discussed in terms that are jarringly familiar. For example, the nine points in Cowley's article on "Athletics in American

Colleges" could have come from the latest exposé in *Sports Illustrated.* The criticisms of Colleges of Education in Orata's article have current relevance. The system for students' ratings of instructors described by Wilson is essentially the same one used by most colleges today. Good's article summarizes research studies on topics that are still the subject of many articles in higher education journals. The assessment movement is anticipated both in Good's article and in Grant's report on the intellectual activities of the alumni of fourteen colleges. The technique used by Matthews to study the honors system is similar to the methods used to assess students' moral thinking today. However, many of the articles suggest transitions from older approaches and forms to those of today. For example, McGrath's discussion of the dean of arts and science, and Lindsay and Holland's book on college administration (reviewed by Copen) suggest that administration was in the process of becoming professionalized, and consequently arousing faculty resistance, as suggested by the review.

The procedures for selecting graduate students described by Brink predated the rise of standardized admissions testing, as well as the dominance of the research function in much of graduate education. Jameson's description of the adjustment problems of university women include familiar issues (costs, study practices, problems with class discussions, disillusion with college life), but does not include some of the current pressing concerns of women (i.e., equality, sexual harassment, career paths). Beard's discussion of the role of the AAUP in defending academic freedom could not anticipate the multiple challenges it faces today.

Some articles discuss topics or use methods that could be investigated today with profit. One example is Eells and Cleveland's study of faculty inbreeding. Their study discovered some startling examples of institutions in which the majority of faculty had obtained their degrees from the same institutions. A study of the extent and effects of this practice today would be well worth doing. Likewise, several studies summarized by Good would be worth replicating.

Two articles are included simply for the sheer delight their reading brings. Newdick's article describes Robert Frost's views of college teaching. Frost spent many years at colleges, and his ideas of teaching through presence and example are thoughtful and humane. Sneden's forecasts for 1980 offer a bemusing reminder that even the wisest among us can be misled by their hopes.

The book reviews, other than those already mentioned, include a biography of a great teacher, Mark Hopkins, and a great student of life, Lincoln Steffens. It also includes three books that suggest the growing maturity of the social sciences. Allport's *Personality* is a masterful integration and reconceptualization of the results of empirical scientific psychology to that point. Mead's *Mind, Self, and Society* played a central role in the development of theories in sociology and social psychology. Finally, Dewey's *The Quest for Certainty* describes some of his ideas that have had a wide influence on educational thinking. Altogether these books suggest the intellectual climate of the decade and its influence on higher education.

It is important to note what did *not* appear in the pages of *JHE* in the 1930s, and the limitations of what is there. First, there is little of our current sense of the importance of diversity in race, class, and gender. There is scarcely a word about African Americans, Hispanics, or any other group; the discussions seem to be based on the assumption of a homogenous society. Likewise, questions about the relationship of access and retention to socioeconomic status are not raised. Except for the article by Jameson, there is little about women. Indeed much of the language used is insensitive to gender. Compared to the higher education literature today, there is rather little on the development of students—certainly nothing to suggest that their concerns and perspectives are critical for an understanding of how our colleges function. Finally, there is little about the research function, which would dominate many institutions in later times.

Of course, these omissions and limitations are a product of the times in which the articles were written. It is sobering to wonder what writers will say about our times 70 years from now. It is also important to note that the selections in this issue are not a representative group. Many articles written in those years described the local experiences or programs of particular institutions. Others were the unscholarly reflections of old timers wishing to share their observations. Rather than being representative, the goal was to include articles with some enduring value, either because of the light they shed on the times in which they were written, or the perspectives they bring to our times. Many of the issues and concerns of the 1930s are still with us, and many of these authors, I think, can still contribute to our understanding.

Suggested Further Reading

The programs of Bennington College and their effects on students are analyzed in the classic study by Newcomb (1943). Some perspectives on the education of women in the 1930s can be found in Solomon (1985); an intriguing perspective is provided by Tidball et al. (1999). There are many books on college athletics, but one of the most insightful is Thelin's *Games Colleges Play* (1996). Studies of the honors systems are noted in the article in this journal by McCabe, Trevino, and Butterfield (1999). The role of German academics in welcoming Nazis into the universities is described by Gallin (1986). The history of graduate admissions is described in Berelson's still useful book (1960). Robert M. Hutchins's career at Chicago is described in biographies by Dzuback (1991) and Ashmore (1989). A good if slightly dated summary of national surveys of alumni can be found in Pace (1979).

There are many books on improving college teaching. One with unusually broad perspectives was edited by Bess (1997). Meyers's (1998) biography of Robert Frost describes his college teaching within the context of his life. Summaries of recent research into the use of student ratings of college instruction can be found in the book edited by Perry and Smart (1997). The breadth of the current concerns of the American Association of University Professors is revealed in the pages of recent issues of the Association's journal, *Academe*. There have been many critiques of Colleges of Education. A fairly typical example is provided by Kramers's (1991) book. The multiple roles of the dean are analyzed by Tucker and Bryan (1991).

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L. L. B.

Robert D. Leigh

The Bennington College Program

The plan to establish a new college for women at Bennington, Vermont, is in definite response to the general need for an experiment in higher education along modern lines. Although the original proposal coincided with a period of unusual pressure of numbers for entrance to the women's colleges of the Northeast, this fact was considered only as offering a favorable opportunity for the new institution, not as a reason for establishing it. The plans for the College are a result of six years of interviews, conferences, public meetings, and surveys. Gradually these have brought to a focus the need expressed by schools, educators, and parents for a new institution such as Bennington proposes to be.

The primary demand comes from the so-called progressive schoolmasters who, setting up initiative, self-expression, creative work, independent reasoning, and self-dependence as aims, and who now find themselves severely handicapped by the fact that their program can proceed only up to the point where the college establishes its formal admissions requirements. From that point on, the progressive schools have had to modify their own chosen programs in the interest of the future of their students. There is needed at least one college with ample funds and high-grade personnel which, by the nature of its entrance requirements, will leave the schools free to teach what they think best; which will, in its own program, emphasize individuality, direct experience, serious interest, creative and independent work, and adjustment to the modern world.

This does not mean that such a college should limit itself to the graduates of progressive schools or that it should uncritically adopt progressive school techniques. Surprising interest and support for such a new college for women have come, also, from the heads of traditional

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schools who see the need for more freedom for advanced instruction and for more discriminating entrance requirements for students of specialized ability.

Bennington says to its applicants: Have you serious interest or real promise in at least one of the fields of human achievement in which we offer instruction? If so, you may enter with us upon a period in which you may test that interest in the light of other interests. If your competence is proved and your interest is sustained, you may go ahead under expert guidance with work in your field of choice as widely, as deeply, and as far as possible. No traditional formal requirements or rules of residence will stand in the way of your getting the best instruction. No mere satisfaction of rules of class attendance, reading of specified books, or accumulation of course-credits will suffice. Your degree will be given on the basis of a demonstration that you have learned how to stand on your own feet and to work with skill and understanding in your chosen field.

The object of the admissions system to Bennington is to discover and to admit girls of serious interest and of unusual promise in one or more of the four major fields into which the College for practical purposes divides human achievement: literature, the fine arts, the natural and physical sciences, and the social studies. A Director of Admissions will select the entrants upon the basis of the following: (1) quality of the school record; (2) score on a scholastic-aptitude test such as that now given by the College Entrance Examination Board and, where the school's standard of grading or accuracy of recommendations is unknown, an achievement test in one of the subjects in which the student has done her best work; (3) such general records, judgments, and personal history revealing indications of purpose, range and quality of interests, traits of character and personality, as can be obtained from school officials, parents, and other persons familiar with the candidate's out-of-school record, and from the candidate herself. Whenever possible a personal interview with the applicant will be held.

Although creditable completion of a secondary-school course is the necessary minimum for entrance to Bennington, it is not a guaranty of admission. Students with uniformly good records will be welcome, but girls with unusual aptitude in one field combined with what may be called temporary or permanent "blind spots" in others, also, will be encouraged to seek entrance. No one will be kept out merely because she has not succeeded in a single subject such as mathematics, Latin, or French. Ability in the fine arts will not be obscured merely because it does not lend itself to school tests or grading. Indeed, a special aptitude in one subject will give a candidate preference over another whose record is more uniform but mediocre in quality.

Under this method of individual selection the Director of Admissions can in most cases make a decision regarding a student's application a year before the completion of her secondary-school course. In the unusual circumstance that such a student in her last school year reveals weaknesses previously not apparent, the College will reserve the right to cancel the preliminary admission.

Under the Bennington plan students will be charged as tuition their full share of the current instruction costs, estimated to be $950 to $975 per year, exclusive of room and board. As a necessary corollary, scholarships and loan funds must be provided to defray part or all of the tuition for those who need and deserve such pecuniary aid. It is estimated that this group will constitute approximately one-quarter of the student body. As in the case of the Rhodes Scholarships, the original award will imply its renewal each year of the student's college course unless her work proves unsatisfactory. Some scholarships will be awarded on a regional basis.

The primary objective that is set clearly before every student immediately after entrance is the discovery of the field of human achievement in which she possesses a marked interest combined with distinct competence. In both the first year and the second year, courses in the four major fields of instruction will be offered. In the sciences, the laboratory method will be employed; in fine arts, creation or expression as well as appreciation will be sought, in literature, the understanding of masterpieces rather than superficial literary history will be the aim; in the social studies, analysis of contemporary problems will be made. In the work of both the first two years, an effort will be made so far as is practicable to correlate the four courses round a cultural epoch. It is planned to have the general subject of the first year, or first two years, modern Western civilization, its literature, its art, and its political, economic, and scientific bases.

In addition to the two-year program of four courses a year, there will be for each student the equivalent of a fifth course called the trial major conference. This is an informal conference group attached to each of the introductory courses. Every student will make at the outset, as a result of conference and guidance, a tentative choice of her major field, which will determine the particular trial major conference group she is to enter. If experience dictates a change of major interest, she will be transferred to another major group.

During the first two years "tool courses," such as mathematics and the foreign languages, will be available for those who plan to do advanced work requiring their use. They will not be required of all. The command of written and spoken English is, of course, an essential tool in all branches of college work, and will be carried on by tutorial or conference methods in connection with the material of other courses.

The test for passage from the Junior Division (first two years) to the Senior Division (last two years) will depend solely upon giving clear evidence of distinct ability in one of the four major fields, and not upon the accumulation of a certain number of credits or grades. Unless a student does creditable work in at least one course during both her first and second years, it is likely that she will be asked to leave college.

The work of the Senior Division for all students will be similar in nature to the honors work now arranged for selected students in some colleges. Every upperclassman will be enrolled directly under the supervision of the instructor or instructors in the field of her choice. Although the precise arrangement will vary with the major chosen, it will be characterized in most cases by individual enterprises or projects involving continuous periods in the laboratory, studio, library, or field, checked by informal group conferences meeting once a week or less.

The field of major interest in practically every case will be broader than any single academic department. It may be organized round a present interest leading to a future adult activity. Where a vocation has not yet developed academic preparation beyond the undergraduate college, Bennington will include training in the minor techniques required for initial entrance, for example, stenography and typewriting may be pursued by young women who plan to enter the secretarial field. The type of intellectual asceticism which fears that contact with practice and reality will destroy the field for culture will have no place at Bennington.

A small residential college with easy opportunity for individual attention is the most favorable atmosphere for the early years when foundations are to be laid and intellectual interests awakened. But in the advanced work requiring specialized library, laboratory, and instruction facilities, no small independent institution can compare with the great metropolitan, artistic, intellectual, and university centers. The College will encourage its students to make full use of metropolitan facilities for advanced work, rather than itself attempt futile competition with them. To this end there will be a winter recess extending from Christmas through Washington's birthday, giving both students and faculty an opportunity for travel, non-resident work, and participation in metropolitan life at its most active period.

During the last two years, students who need facilities which the College cannot itself offer will be encouraged to go to foreign or American centers of culture where there are the best opportunities for continuing their major work. The utmost flexibility in making individual arrangements will be permitted, but, in all cases, the College faculty will retain supervision of the non-resident work leading to the Bennington degree, which will be that of Bachelor of Arts. No graduate work is contemplated.

A residential college cannot ignore the fact that it is an organized community. Until the last generation college faculties held aloof from student life outside of the classroom. Bennington intends to take advantage of its unique opportunity to bring about such a reorganization as will produce something nearer unity of purpose. By recognizing the value of many of the student enterprises, by basing the students' tasks upon their fundamental ambitions and interests, by setting up skill and understanding in a major field as a principal aim to which both curricular and extra-curricular activity will contribute, the College will attempt to destroy the gulf between student and faculty purposes. The athletic, dramatic, musical, publication, religious, and self-government enterprises of under-graduate life can, by intelligent guidance, be incorporated into the intellectual program sponsored by the faculty. An attempt will be made also to enlist the faculty in the co-operative task of making a patient, continuous, impartial analysis of the veritable mythology which has grown up round the subject of the tastes, manners, morals, and ideals of the younger generation, with an eye to gaining a greater insight into the primary educational influences affecting modern youth.

Students' social organizations are the cause of much trouble in educational institutions because of their snobbishness and competitive struggles for prestige. In place of them, a social grouping of all students will be made in connection with living and eating arrangements, according to a plan which resembles that of the hostels connected with the newer English universities. Groups of approximately twenty girls will occupy college houses, each student being assigned for her four-year residence by a committee of students and college officers. In every house one or more selected faculty members will live, entirely free, however, from custodial or disciplinary duties, and each house will have associated with it also a number of other faculty members. In time, there will grow up in each house a corporate group with its own alumnae, traditions, and individuality. Although the College itself is so small that many of its activities will cut across house lines, in the houses themselves there will be opportunity for informal education in self-government, group budgeting, household management, hygiene, and other problems developing out of the normal needs and interests of the students themselves.

A faculty for an institution such as Bennington proposes to be is easy to describe but difficult to secure. Attention will be concentrated upon obtaining and rewarding gifted teachers of undergraduates. To this end any merely traditional requirements regarding formal academic training, experience, and research will be willingly sacrificed. Because the attainment of the Ph.D. degree has proved in practice to be an irrelevant standard for determining teaching effectiveness, it will not be used as an important basis either for appointment or for promotion. And although the faculty will necessarily be recruited largely from the younger members of the college teaching profession, there will be appointments of persons a part or all of whose training and experience has been outside of academic life.

The college, reversing the usual order of determining faculty salaries, will fix a salary scale based upon existing data regarding an adequate academic standard of living; tuition charges will then be placed at an amount sufficient to cover the salary total. If the salaries prove inadequate, the tuition will be raised. From the outset, experiment will be made with the family allowance system, which adjusts the salary to actual family needs and promotes a practical equality between the men and women on the staff.

Bennington College, at the present time, consists of the plan just outlined, a campus site on a hilltop in Vermont, a charter, plans for buildings in colonial style to provide for a total of 240 students, a board of trustees, a president, and pledges now lacking $300,000 of the $1,250,000 necessary for beginning construction and, one year later, instruction. If the aim in establishing the College were merely to meet a local demand, there would be a temptation to begin operations with a limited program in the hope of securing later gifts to finance the institution more adequately. But its sponsors realize that the educational task they have undertaken is a purely qualitative one and that to handicap it at the outset with insufficient funds would destroy its reason for being. Thus its actual beginning cannot as yet be determined.

The Reporter

ST. MARY'S COLLEGE of South Bend, Indiana, has withdrawn from the American Association of University Women as a protest against the advocacy of the association of "legalizing and dispensing of information by physicians on contraception." (1936)

Samuel Haig Jameson

Certain Adjustment Problems of University Girls

A girl entering the university is an unknown, but a knowable quantity. An inventory of her experiences, desires, ambitions, habits of thought and action would enable her educational advisers to utilize appropriate techniques for her conditioning. Whatever may be the ultimate objectives of the university, such objectives cannot find realization without an analysis of the students who come to the institution as raw materials, to be transformed into certain finished products. Without this finishing function, the university could not justify its existence. Rightly or wrongly, such results are expected, particularly in a state university.

In order to ascertain those areas of experience in which freshman women found difficulty in adapting themselves to the aims of the university, and in gaining satisfaction of their wishes and wants from the university, and to discover the range of intensity and the extent of the problems of these freshman girls who found it difficult to make the anticipated adjustments, 341 freshman girls were interviewed. These girls told, in their own language, and without any suggestion on the part of the interviewer, their problems of personal adjustments since coming to the university; but in order to assure some semblance of uniformity for comparison later on, the interviewer asked a series of questions touching on certain special areas of university adjustment experiences. The volunteered expressions and the direct answers to the questions were recorded after the student left the room. All the necessary precautions were taken to reproduce their statements as accurately as possible in terms of incidents cited by the students and their reactions to both specific and general situations. After going over these 341 case records, the types of

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problems elicited were specified. Seeming duplications were eliminated. Out of these types of problems, a questionnaire covering fifty-six areas of experience was prepared which could be answered by yes and no.

The next year, 1932–33, in the fall term, the study was carried a step further. One hundred and seventeen Freshmen for that year, representing both the dormitory and sorority groups, were interviewed first, and then the questionnaire prepared at the end of the previous year was submitted to them. Our purpose in doing this was twofold: to standardize the test, and to see what changes had occurred in the range of maladjustment experience areas of the freshman girls during these two successive years. Those problems which reappeared as constants were tabulated in this study. The rest were dropped out.

Moreover, during 1933, of the initial 341 freshman girls 113 were again interviewed as Juniors in the University, and the questionnaire was also submitted to them. Our purpose was to discover the extent of solution of the problems during their travel from the freshman to the junior years, the emergence of new problems, the techniques of adjustment, and the validity of the initial interview by checking the answers through their answers to the questionnaire.

Some social scientists question the value of the interview technique. With respect to this study, however, we have become confirmed believers in its validity. Out of 113 Juniors only one case admitted that during her freshman interview she did not tell the facts. Our checking of the interviews with the yes-and-no questions brought the same result. Willful misrepresentation happens in less than one per cent of the cases. The administration of the questionnaire as a supplement to interviews was necessary as a double check. The questionnaire not only served to bring to mind problems the girl had faced, but enlightened her as to the breadth of problems which could be included among adjustment problems. Obviously, only those problems which weighed heavily upon the student's mind as needing adjustment were voluntarily expressed to the interviewer. Undoubtedly many of the girls because of established complexes, lack of support, and fear of ridicule, and the like, have concealed some of their major adjustment problems. The data presented in this study are decidedly student-centric; they reveal the problems which have come to the threshold of their awareness, and for which they have sought some answer. A few of them are presented here, therefore, from the student's point of view, no matter how much we ourselves may remain unaware of their existence.

In this study we have endeavored to focus attention on the local instead of the extramural problems. No doubt, several of the fifty-six adjustment situations elicited exhibit out-of-university forces and factors.

Nevertheless, they are manifestations within the University while the students are carrying on activities to adjust themselves to the direct and the indirect, overt and subtle demands of the academic world. Of the fifty-six adjustment areas covered in the study, only four are included in this paper. These four are grouped together because they deal strictly with academic and scholastic pursuits.

Universities indulge in advertising as do business firms. No educational institution can perpetuate itself without loyal graduates, and graduates are possible only when students enroll, and the enrollment increases by selling university education to ambitious men and women.

During this process of salesmanship some prospective students underestimate the financial cost of the anticipated degree. Although the university catalogues devote pages to the minimum and maximum cost per year of each specific course, students discover that the minimum specified is not sufficient to carry them on throughout the academic year. Moreover, there are students with different standards of living who only after their sojourn on the campus for a while discover that their education is going to impinge upon their funds more than they ever anticipated. Certainly there are students who after once putting their hands to the plough do not turn back, but others offer sets of rationalizations in terms of the high cost of education in the university. Some leave the institution because they find the financial strain greater than their endurance; others stick by in spite of greater financial investment than they expected to make.

The conflict arising out of this financial incompatibility is not a minor one for the girls of the three groups. For the Freshmen of 1931, the rate of incidence is 18 per cent; for the 1933 Freshmen, 21 per cent; and for the Juniors, 35 per cent. Apparently the longer the students stay in school, the more they realize the weight of their financial burden. Thus, with a constancy of 18 per cent, it becomes an important problem in the mind of the students, although a 4-per cent increase in 1933 over the 1931 period appears negligible.

It is unnecessary to present many illustrations here. The fact is self-declaratory. One student says:

> My dad interferes with all of my plans. He preaches *little money* all the time. He thinks that college is costing too much, so I never get anything I want or need!

Another, speaking of her predicament, states:

> I would like a change if I thought I could possibly make it financially!

Still another admits:

> Finances are now my biggest worry and have been for some time. I hope to make it through by next year.

A fourth, much discouraged, reveals the frustration of her family plans:

> Finances kept us from going to Washington, D.C. I've had to be careful this year. I hope to return next year. This place has cost more than my dad thought it would.

And finally one bemoans:

> I have no money for extras or for clothes. . . . I wish someone would tell us what to bring to college by way of clothes. I wasted a lot of good money buying things the salesladies said I would need. Now I am holding the sack. . . . My parents say I can't have any more. Who would have thought that college would cost a fortune!

These sundry illustrations offer only introductions to several parts of the problem. Each one of these parts is an individual matter, yet the experiences take place according to a social organizational setup which perturbs minds and creates maladjustment situations; and no matter how vociferously college and university presidents advertise the value of higher education in terms of financial returns after graduation, some students are still of the opinion that the investment they must make during the four years is more than they can manage. A few students go further and criticize the lack of financial equalization for the students in a state university, and their criticisms find supporters among the rank and file of the labor groups throughout the country. Equalization of the costs of higher education calls for a planned system for the youth of the state as a whole. If one third of the Juniors and one fifth of the Freshmen find it too expensive to procure an education in the university and become disgruntled, the matter deserves careful consideration by the taxpayers of the state and their special representatives engaged in the administration of policies in the field of higher education.

Item 46 in the questionnaire, related in part to secondary-school experiences where the technique of learning is on a different level, occupies the third place as far as frequency in incidence is concerned. Recitational method with dependence upon a textbook, coupled with the dogmatism of a teacher because of limited range of familiarity with the field, is somewhat incompatible with the university professor's seeming profundity of specialized knowledge. In the university, lectures take the place of recitations; formidable lists of references are substituted for a single textbook; instead of being exposed to the views of one person, the student is expected to familiarize herself with many diverse opinions; instead of lingering on one item until even the mentally slowest understands it, the lecturer states the point and passes on; instead of pointing out the important concepts by underlining them in the textbook, the professor leaves the girl to separate the wheat from the chaff for herself. Note-taking, classification, description, and impartial presentation are all new ideas. The university teacher is not hired to teach the technique of study as applied to his own field. As he has learned it by the method of trial and error, he leaves the pupil to grope for herself until she arrives at the promised land or perishes by the wayside. It is not surprising, therefore, to note that 42 per cent of the 1933 Freshmen felt themselves maladjusted because of their inability to know in advance the way to study their assignments. Neither does this situation tend to show much improvement after the students reach the upper-division level. Forty per cent of the Juniors for 1933 believe that they suffer because of inadequate techniques of study. What could be considered more aggravating and perturbing to a freshman girl than the inability to study? And this problem shows 12-per cent constancy.

Here is a major problem worthy of the attention of the faculty and the administration. The present high rate of mortality during the first two years in college may be attributed, at least in part, to this indifference of the instructional staff. A few typical illustrations should be sufficient to give a glimpse of the reactions on the part of the girls. The Juniors admit:

> "I think I still have a hard time budgeting my time for study. I didn't know how to study—really."
>
> "I still do not know how to study. I think that that should be learned in high school. It's a waste of time, energy, and money to have to learn here."
>
> "I haven't really learned to study even yet. This is my biggest problem right now."
>
> "As for knowing really how to study I don't even today. . . . I can concentrate better now since I have been forced to study."
>
> "I didn't know how to study. I didn't know how to divide my time. Study table merely antagonized me. I really haven't adjusted to this yet."

As for the Freshmen, the following are self-revelatory:

> "I haven't made my grades and my sister has. I just don't know how to study."
>
> "I have found my biggest difficulty was not knowing how to study."

> "Of course my grades suffered. I don't know how to study."
>
> "With no preparation for self-dependence in studying, it is hard for a girl to get along her first year. I hope it won't be so hard next year."
>
> "My principal problem is working out my budget of both money and time and of concentration. I didn't learn to study when I was in high school."

Whether a new set of required courses in the technique of studying should be initiated in the university in order to tackle this problem, or whether the responsibility should be expected of the secondary schools, is to be determined by the judges of these two—interdependent educational administrators and curriculum-makers. Meanwhile, realizing that only a fraction of the secondary-school pupils ever go to institutions of higher learning, it becomes the task for the latter rather than for the former. The predominant attitude of the students, however, appears to shift the responsibility to the schools.

The questions, Are class discussions a particular problem to you? Do they really bother you? elicited 12-per cent frequency among the 1933 Freshmen, 14 per cent for the Juniors, and none for the 1931 Freshmen in the winter and spring terms, but for the fall term, 45 per cent. Apparently most of the Freshmen pass through a crisis period in the fall term when everything is new. Especially open discussions on taboo literary works, the theory of evolution, the mysteries of heredity and variation, and contemporaneous social problems offer novel intellectual food for thought which, because of previous biases and rationalizations, open the floodgates of emotional-reaction patterns. That free discussions on the part of the instructor and certain sophisticated members of a class are really emotionally disturbing features on the campus is well substantiated by the students. Here are a few of the statements taken at random:

> "I am bothered when the 'prof' talks on sex matters. I am so embarrassed."
>
> "Large classes are all right, but I hate like Hades to talk in them on certain matters. They deal too much with personal things."
>
> "Large classes and their discussions bother me."
>
> "I have had a hard time in my classes because there is so much discussion. . . . I wasn't used to boys either and to find them in my classes was hard at first. I didn't want to recite. . . . I'm doing better now."
>
> "I am not used to seeing boys in my classes. I went to a boarding school before I came here. It is so very different. I feel very embarrassed sometimes when I go to recite."
>
> "My third major problem was having boys in the class. The frankness of professors before men floored me for a while."

> "I had a very difficult time with large literature classes. . . . I could not bring myself to recite as I should."
>
> "I disliked reciting in classes and large classes bothered me."
>
> "Frankness of professors bothered me at first. Then I knew them and I have not minded it since."

These statements suggest a variety of problems: subject-matter, frankness on the professor's part, size of classes, and coeducation. Some of these are remediable. For instance, one of the girls who was much bothered with the frank discussion on sex matters claims that "dating" with boys cured her. Others get used to the presence of the male sex in the classroom within a short time. Still others learn to take the discussions impersonally, abstractly, objectively; therefore they no longer suffer from self-consciousness. Hence, most of these problems of temporary maladjustment solve themselves with the widening of the student's range of mental and social horizon. The size of classes, however, presents an almost insurmountable barrier. This, too, could be handled by dividing the classes into smaller groups, but mass education is still the rule. There is the angle of per-unit cost of instruction to consider, and the administrators have not become enlightened enough pedagogically to introduce the necessary adjustments in the size of classes. It is not a matter of concern only to the students who find difficulty in adjusting themselves to large-sized classes; it is a real problem to be faced by the administration, parents, and particularly by the tax-payers. This problem invites more than passing notice on the part of the various groups.

Area 12 deals with the problem of disillusionment in college. Perhaps there are as many expectations from college life as there are students. Each girl has her fancies, her wishful thoughts, her ideals concerning the college atmosphere as a whole and the college man in particular. When actualities fail to measure up to expectations, disillusionment is inevitable. The question, Have you had an adjustment to make because college is not what you thought it to be? has elicited the following: 12 percent of the 1931 Freshmen, 17 per cent of the 1933 Freshmen, and 20 per cent of the Juniors are disappointed in college life. The reasons for their disillusionment are legion, but from the quotations presented one may discern the range of the problem:

> "Is college life worth while? I have begun to ask the question to myself. . . . There is so much emphasis on the social side of it to the exclusion of intellectual development. It is much more than disillusioning."
>
> "My classes are too elementary for me; they are not stimulating enough. High-school stuff! I thought I would learn something new in college, but I don't seem to. You know, my father is a professor."

> "I am not satisfied in college and am quite disillusioned with everything."
>
> "I am disappointed in university life. I often want to go home to stay. I am bothered by cliques in the house."
>
> "I am terribly disillusioned in college. It is not what I dreamed it would be like at all."
>
> "I am terribly disillusioned in school, especially fraternities. I think this is a snobby campus. . . ."
>
> "I think many Freshmen are disappointed in college, don't you? I mean that they dream of college being quite different from what it is and rush-week meets the illusion perfectly."
>
> "I've found college different from what I expected. I found that my high-school activities didn't help me to be more popular in college. . . . The house hasn't pushed me as they have other girls. . . ."
>
> "I am a little disappointed in that. . . . I build up a 'castle' of what I thought life would be like here, but having to get good grades, etc., has taken all the gilt from my dream."
>
> "I expected much bigger things than I've found here at the university. I built a dream which was unreal, I guess. . . . I am disappointed in my department. I don't want to return next year."

Expressions from the Juniors further supplement this dominant reaction pattern. For instance:

> "I don't care about my course or my activities. I don't like this school. In fact I am terribly disillusioned. . . . I came here only to be away from home."
>
> "I was not a leader in high school and had dreamed of being one in college. I was quite disillusioned in my dreams."
>
> "I am quite disillusioned in school, and in people. . . . I was disillusioned in men my first year on the campus. These men expected nothing less than 'all.'"
>
> "I have been terribly disappointed not to have been recognized in the house by being given an office this year. . . . I am so disillusioned in school and in people in general. I don't want to come back next year."
>
> "College is an awful bore! Professors, students, and subjects. . . . Everything bores me. . . . The campus is snobbish."
>
> "My biggest comedown was in my dreams of college when I pictured myself as the 'belle of the campus.' . . . I had practically no dates. The boys didn't fall for me. . . . I had been the rival of many girls in my home town—and such a comedown here was indeed hard."

These Juniors, after having had at least two years of opportunity to orient themselves with the objectives of the institution, still feel disillusioned and disappointed.

Each and everyone of these represents a type. They reveal some of the causative factors in the disillusionment process of the girls in general. Some girls state clearly that the disappointments go to the extent of abhorring the university atmosphere altogether. A thorough analysis of these typical causative factors and a systematic approach for their alleviation might change the attitudes of these girls who otherwise will nourish an anti-higher education complex as prospective tax-paying citizens.

With the hope of adding flesh and blood to skeletal quantitive data based on returns from 341 of 1930–31, and 117 of 1932–33 Freshmen, and 113 out of the 1933 junior class, direct statements by these girls in personal interviews were offered. This illustrative material substantiates the quantitative results revealed in this study.

A university or college administration handles diversified issues according to a unified educational policy. The many girls and boys, each with specific problems, are to be handled in conformity to some system. The four areas of adjustment cited here could be treated configurationally only by those who consider the system of higher learning as a unit. Be it the president, the deans of men and women, the personnel office, or the whole faculty, each must have a clear-cut conception of a university's role in the preparation of future citizens. Administrative cross-purposes accentuate the problems of the individual students. A unified administrative front might be able to offer concrete criteria to attack the emergence and the incidence of the individual student's problem.

The Reporter

A new course, "Women in Society," has been established at Stanford University. Almost coincident with the announcement of this course comes the report of an address of Mr. Clyde Hill, of Yale, characterizing the curriculum of women's colleges as excessively masculine. (1937)

W. H. Cowley

Athletics in American Colleges

The Carnegie Foundation for the Advancement of Teaching has recently published, as Bulletin Number Twenty-three, its third study dealing with the subject of athletics. The first described athletic sports at some twenty American colleges and universities and was published as part of the Twentieth Annual Report of the Foundation in 1925. The second, Bulletin Number Eighteen, issued in 1927, dealt with games and sports at British schools and universities. Both these previous investigations were introductions to the present extensive study carried out by Dr. Howard J. Savage, member of the staff of the Carnegie Foundation.

Dr. Savage's report is so voluminous that the editors of this Journal feel that a summary of its contents may make for a more widespread knowledge of the investigator's findings. Few college administrators and teachers have ready access to the study, and an even smaller number have the leisure at their disposal to give it the attention and the thought it deserves. Newspaper reports have unfortunately been too brief to be of much value, and, moreover, they have tended to be more sensational than inclusive. They have given the general reader an inadequate picture of what the Foundation and its investigators have sought to accomplish. The following summary is submitted to the college and university public that there may be a wider understanding of the objectives and results of several years of work on the part of the Foundation.

Dr. Henry S. Pritchett, president of the Carnegie Foundation, introduces the report with a long Preface which seeks to put the investigation in perspective. He observes that the investigators sought to answer two fundamental questions: "What relation has this astonishing athletic dis-

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play to the work of an intellectual agency like a university?" and "How do students, devoted to study, find either the time or the money to stage so costly a performance?" Commenting on the data collected to answer these questions, Dr. Pritchett makes the following general observation which sums up what appears to him to be the most important problem involved. "The question is whether an institution in the social order whose primary purpose is the development of the intellectual life can at the same time serve as an agency to promote business, industry, journalism, salesmanship, and organized athletics on an extensive commercial basis. The question is not so much whether athletics in their present form should be fostered by the university, but how fully can a university that fosters professional athletics discharge its primary function. . . . How far can an agency, whose function is intellectual, go in the development of other causes without danger to its primary purpose? Can a university teach equally well philosophy and salesmanship? Can it both sponsor genuine education and at the same time train raw recruits for minor vocations? Can it concentrate its attention on securing teams that win, without impairing the sincerity and vigor of its intellectual purpose?"

The unfavorable results of athletic development upon students he considers to be the nine following:

1. College athletics have a deleterious effect upon secondary schools.
2. College athletics are too absorbing to allow the athlete really to study.
3. College athletes are given a distorted sense of social values.
4. Coaches have an undesirable cultural influence upon their charges.
5. Competition produces a system of recruiting and subsidizing which "is demoralizing and corrupt."
6. Alumni devices for recruiting winning teams "constitutes the most disgraceful phase of recent intercollegiate athletics."
7. College athletics do not contribute appreciably to the health program of colleges.
8. "The strict organization and the tendency to commercialize has taken the joy out of the game."
9. "The blaze of publicity in which the college athlete lives is a demoralizing influence for the boy himself and no less so for his college."

Carrying the discussion over into educational philosophy Dr. Pritchett observes that "many boys and girls whose usefulness and happiness would be best sought in a commercial or industrial trade are carried into the college by the mere sweep of the tide. Insensibly but inevitably the intellectual quality of the college is softened in order to meet the capacity of those who must be cared for. . . . But no nation can afford in its educational system to forget that to the great mass of mankind an honest job, performed in good spirit, is the road to moral soundness and to social contentment."[2]

In answer to the question of what is now to be done about the athletic situation, Dr. Pritchett cites the divergent points of view of Erasmus and Luther viewing "the low state of the church and the university in their day" and infers that there may be gradual and peaceful readjustment" or a new educational system may grow out of present perplexities, and that "the need today is to re-examine our educational regime with the determination to attain in greater measure the simplicity, sincerity, and thoroughness that is the life blood of a true university in any country at any age."

The first four chapters of the body of the report might be called background chapters. The first concerns itself with the history and scope of the investigation, standards, criteria, and definitions. These details are not pertinent to this summary, and no more need be said of them here than that five investigators visited one hundred thirty schools, colleges, and universities, gathering the data used in preparing the report.

Chapter two presents an interesting history of the growth of college athletics. Dr. Savage divides the history of athletics into four periods, and in great detail discusses each period as they pertain to intercollegiate contests, extramural matches, and control. His first period is from the beginnings of American collegiate athletics up until 1852. The second which he calls the "Intensification of College Sports" extends from 1853 to 1885; the third, the "Expansion of College Athletics," from 1886 to 1906, and the fourth, the period in which the struggle for control has been dominant from 1907 until the present time.

Chapter three is concerned with the development of modern amateur status. Herein the author summarizes the history and development of the amateur status in the United States and compares it with the professionalism and amateur points of view in Great Britain and Canada. In chapter four he reviews the status of athletics in American secondary schools and discusses both physical education and athletics and the relationship of the one to the other. It is the conviction of the investigators that American secondary athletics are closely related to and influenced by collegiate athletics, and for that reason this chapter is included. It helps to give the reader a more complete picture of the situation than would be otherwise possible.

The main body of the study begins with chapter five which is entitled "The Administrative Control of American College Athletics." Dr. Savage observes that "aside "from the hurried, imitative adoption of a few catchwords and *cliches*, like 'Athletics for all,' or 'Every student a player,' and a very high regard for material equipment, the shaping of a comprehensive administrative policy for athletics has very generally been neglected." He believes "the monetary and material returns from intercollegiate athletics are valued far more highly than their returns in play, sport, and bodily and moral well-being." Furthermore he asserts that "the present tendency is to look upon faculty control, whether genuine or not, as the panacea of all the ills of athletics. When the criteria which have just been set down lend reality to what is so often a mere subterfuge, certainly true faculty control at its best is to be preferred to control by graduates or coaches."

He submits that because of the hugeness of athletic receipts, there flow certain results which have not yet received the scrutiny that is their due. These he considers to be the luxuries which are lavished upon players, extravagance in special personnel, including budgets for coaches, publicity agents and expenses of newspaper men, and the fictitious exaggeration of the importance of athletics, especially of football. This latter excessive importance has led "to reserving for intercollegiate competition the best and largest athletic facilities, with the consequent impoverishment, and in many cases, the consequent inadequacy of intramural athletics." This same exaggerated importance of athletics has brought about a poor administration of the problem of scholastic eligibility which is being attacked with hardly more than "a mere show of conscientiousness." The suggested panacea of faculty control Dr. Savage considers to be "often a mere subterfuge" although "true faculty control at its best is to be preferred to control by graduates or coaches."

Chapter six is concerned with athletic participation and its results. Herein are discussed the forces and motives which lead men and women to engage in collegiate athletics; the characteristics of these participants; the branches of athletics now prevalent in colleges and universities; the conditions under which students take part; and finally, the immediate and the ultimate or deferred results of their participation. The forces and motives which lead undergraduates to participate in athletics are considered to be: (1) an individual's inheritance of athletic characteristics, (2) the requirements of physical education, (3) the enjoyment of athletics, (4) college opinion which serves as a pressure to urge capable athletes into continuous competition, often to the neglect of their studies and against their personal desires, (5) the advantages that athletic participation has in opening vocational opportunities, and (6) the payment for participation in intercollegiate athletics.

The study has demonstrated that about 63 per cent of all undergraduates in the one hundred and twelve institutions studied take part in athletics regularly or intermittently. Of these, 18 per cent to 25 per cent engage in intercollegiate athletics, while from 50 per cent to 63 per cent take part in intramural athletics, voluntary or compulsory. These data compared with a study by Professor Sheldon in 1900 indicate that "no great increase has taken place over the past thirty years in the proportion of undergraduates participating in intercollegiate athletics. Over the period, however, participation in some form of athletic activity among undergraduates has more than doubled, and probably trebled." This same chapter includes considerable detailed information concerning the conditions and results of participation in intercollegiate athletics. These data are too detailed to be summarized here. It is perhaps enough to observe that they give a more adequate picture of the physical and scholastic results of participation than is available in any other place. This one conclusion, however, is significant enough to find a place in this abstract. Reporting upon the academic achievement of athletes as compared to the achievement of non-athletes, Dr. Savage has this to say: "On the one hand, we have youths well endowed physically and mentally who should outdistance their fellows in the race of life; on the other, we find no evidence that the best places in this race have been won by these men, whose tastes and training have led them into intercollegiate athletics. The indicated conclusion is that the American system of intercollegiate athletics is to blame for this situation rather than the body of youth that is subjected to its workings."[3]

Chapter seven is entitled "The Hygiene of Athletic Training." It is a careful analysis of athletics in relationship to the student's health and current practices judged by participation, physical condition, medical supervision, training, injuries, and the like. Dr. Savage summarizes this part of his investigation by observing that "There can be no doubt that athletics, if well conducted, may be made to contribute significantly to the physical health of students." Certain facts, however, set forth in the text and in the tables "clearly demonstrate that under the present system of conducting athletics too few students receive benefit and too many incur positive harm. Moreover, certain widespread athletic practices mentioned in preceding pages actually jeopardize the physical health of the participants."

"The Coach" is the subject of chapter eight. Such topics are discussed as The Training and Selection of Coaches, The Status and Tenure of Coaches, The Coach's Salary, 'The Work of the Coach, A Few of the Extramural Relationships of the Coach, The Attitude and Influence of the Coach. A development of recent years has been the appointment of coaches on college faculties. Concerning this practice, Dr. Savage has this to say: "Appointment as a member of a faculty as contrasted with employment on a part-time or seasonal basis confers no mystical assurance that the work of any coach shall succeed in developing habits of honesty, uprightness, courage, or self-reliance among the young men entrusted to his care. Of all the field of higher education, physical education shows the largest number of members with the rank of professor who have only the bachelor's degree or no degree whatever. In short, faculty status of itself guarantees to the institution nothing whatsoever with respect to the ability and character of the coach."[4] Data dealing with length of tenure are summarized in the report as follows: "All told, the enquiry has dealt with 272 coaches whose service has totaled 948 years in separate institutions. On the average the stay amounted to 3–49 years, while the median tenure was two years. Of the 82 head football coaches who held their positions at institutions of the study, the total service years at these institutions were 387, with an average of 4.72 years and a median of three years. Such facts as these, and others to follow, indicate that the length of the tenure of the coach, and especially of the head coach at football, is increasing"[5] Discussing the salary of coaches, he has produced comparative data as follows: "At over one hundred universities and colleges the highest salary paid to a dean was $15,000, the median $6,000, the average $6,409. The highest-paid full professor received a salary of $12,000, while the median among such professors was $5,000, and the average $5,158. Among eighty-three directors of physical education or graduate managers, the highest salary was $14,000, the lowest $1,000 for part-time work, the median $4,800, and the average $5,095. Of ninety-six head football coaches, the highest paid drew a salary of $14,000, and the lowest $1,800, while the median salary was $6,000, and the average $6,107."[6]

In chapter nine, concerned with extramural relationships, such problems as alumni influence upon athletic policy, intercollegiate rivalry, and athletic conferences, are discussed. In this same chapter are summarized and discussed the national athletic bodies which are concerned in one way or another with such problems as faculty control, eligibility, compensation to players, training regulations, summer baseball, coaching, and sportsmanship. The significance and effectiveness of these bodies are appraised, and in general the present health of intercollegiate relationships is evaluated. The general inference is that conditions are far from being in the healthy state that they should be.

The chapter in the report which has been the center of newspaper comment is chapter ten, entitled "The Recruiting and Subsidizing of

Athletics." While producing data to demonstrate that recruiting on a large scale is actively going on and that subsidizing in some form was found to exist at eighty-one of the one hundred twelve institutions studied, the situation is decidedly improving. In this connection the author observes that "with all due allowance for the tendency to magnify the past in comparison with the present, there can be little doubt that the evils of soliciting and subsidizing athletes have diminished over the last twenty-five, twenty, or even fifteen years. A study of facts and opinions set forth from time to time since 1896 in the publications of various bodies, like the National Collegiate Athletic Association and the National Education Asociation, by men possessing much knowledge of the conditions involved, makes clear that matters have improved. On the other hand, letters, accounts, and other records indicate that this improvement has been one of degree but not of kind; some of these letters, a sampling of which is printed in the Appendix, might easily, if their dates were altered, do duty under present condition."[7]

The two final chapters are concerned with the press and with the values of athletics. The first of these chapters marshals data to demonstrate the tremendous growth of sporting pages and the unprecedented importance which is being given to college athletics and the college athlete. This growth has led to the charge that newspapers, monthly magazines, and weekly publications are exploiting college athletes for financial gain, and that clearly journalism is guilty of sensationalism and petty graft.

Despite this black picture, Dr. Savage observes that "the traditions of the great names of American journalism—Benjamin Franklin, Greeley, Bolles, Dana, and Pulitzer—have not by any means been submerged in the rising tide of commercialism." In his chapter on "Values in American College Athletics," Dr. Savage attempts to weigh the good points of the present athletic regime against the bad. He considers that among the salutary influence of athletics are their "direct physical effect upon the nation that justifies not alone their continuance but also their encouragement and further development, especially in their intramural phases"; and their socializing influences both in school and college and after graduation. On the score of undesirable influences of athletics he lists (1) the widespread opinion among alumni that college registration depends upon successful athletics teams, an opinion which the investigators found to be unwarranted; (2) the evil effects of recruiting and subsidizing that probably persist into business and professional life; (3) commercialization defined as "that condition which exists when the monetary and material returns from sport are more highly valued than the returns in play, recreation, and bodily and moral well-being; (4) the lack of intellectual challenge to the young and alert mind; (5) the control of athletics by imitative methods rather than through adaptive growth; and (6) the failure of athletics to contribute appreciably to morals and conduct. On this last point Dr. Savage writes that "vociferous proponents of college athletics have claimed for participants far greater benefits than athletics can probably ever yield, and, in attempting to evaluate these supposed benefits, have hailed the shadow as the substance."

Since this chapter is the last of the report the author has herein also stated his general conclusions. Newspaper comment and Dr. Pritchett's Preface have given the impression that the athletic situation is completely black. Dr. Savage, however, does not take that position. He writes that "improvement during the past thirty years [has] been marked. Let the improvement continue . . . let their [college athletics] physical, moral, and spiritual potentialities in the education of youth be clearly understood and sincerely acted upon, and their value in our national life will be immeasurably enhanced." In an earlier chapter he writes that "there can be no question of abolishing college athletics, nor should there be. What can be looked for is a gradual establishment through concrete action of a few general principles, to which all men would agree in the abstract. Even this slow change will be impossible without the sanction of an enlightened college and public opinion." To aid in the building up of such a body of opinion has, presumably, been one of the major reasons for undertaking the investigation.

Coming to the last page of the bulletin and facing the problem of what is to be done about present conditions, Dr. Savage writes as follows: "The prime needs of our college athletics are two—one particular and one general. The first is a change of values in a field that is sodden with the commercial and the material and the vested interests that these forces have created. Commercialism in college athletics must be diminished and college sport must rise to a point where it is esteemed primarily and sincerely for the opportunities it affords to mature youth under responsibility, to exercise at once the body and the mind, and to foster habits both of bodily health and of those high qualities of character which, until they are revealed in action, we accept on faith.

"The second need is more fundamental. The American college must renew within itself the force that will challenge the best intellectual capabilities of the undergraduate. Happily, this task is now engaging the attention of numerous college officers and teachers. Better still, the fact is becoming recognized that the granting of opportunity for the fulfillment of intellectual promise need not impair the socializing qualities of college sport."[8]

Notes

[1] Savages Howard J. et al. *American College Athletics.* New York: Carnegie Foundation for the Advancement of Teaching, 1929. p. xii. (Bulletin No. 23)

[2] *Op. cit.*, p. xvii ff.

[3] *Op. cit.*, p. 133.

[4] *Op. cit.*, p. 167.

[5] *Op. cit.*, p. 168.

[6] *Op. cit.*, pp. 171–72.

[7] *Op. cit.*, p. 225.

[8] *Op. cit.*, p. 310.

The Reporter

At its annual meeting in November the National Association of State Universities adopted a series of standards for athletic eligibility, the more important items of which are the following:

1. Any student, who, because he is an athlete or prospective athlete, is receiving or accepts the promise of any preferential consideration in the manner of tuition, fees, room, board, clothes, books, charge account, scholarship, loan, job, or any other financial aid or material consideration whatever, whether promised or provided by the institution or any of its representatives or agencies, direct or indirect, or any alumnus or group of alumni, any student or group of students, or any partisan or supporters of the institution or any of its teams, is ineligible to represent the institution in an intercollegiate athletic contest.
2. Only a scholarship, loan, job, financial aid or material consideration of any kind whatever within the direct or indirect control of the institution or any of its representatives, associations or allied agencies, which is open to all students without discrimination and which is awarded only by a representative and responsible faculty committee after equal and fair consideration of all applications for which fair and public notice had been given in a reasonable time, shall be open to an athlete or a prospective athlete.

Since the Association is not a legislative body and has, therefore, no enforcement powers, these standards are not submitted as a code but merely as a guide to member institutions who, it is hoped, will follow both the letter and the spirit of the standards adopted. (1936)

A recent faculty action indicates that all men presenting themselves as candidates for graduating from Hiram College, in addition to giving evidence of the traditional two-year gymnasium attendance required by most colleges, must be able to demonstrate to the satisfaction of competent judges that they posses reasonable skill in six sports including some group sports such as football, basketball, and volleyball; some dual sports such as tennis, fencing, wrestling, and boxing; and some solo sports such as skating, swimming, and golf. (1939)

The Department of Physical Education of the University of Missouri now offers a course in bait casting. (1937)

Undergraduates of Vassar College who passed the required horsemanship test are this year permitted to substitute fox hunting for gymnasium work during the autumn term. Such a substitute is made possible because of the co-operation of the Rombout Hunt of Poughkeepsie. (1935)

C. O. Mathews

The Honor System

It was the purpose of this study[1] to discover the nature of and variations in attitudes toward academic honesty among students and faculty members of a certain institution where an honor system had been recognized for about twenty-five years. Academic honesty is here used to refer to honesty and integrity in respect to preparing assignments, writing examinations, and other exercises directly related to class or learning activities.

A blank called a Personal Opinion Blank was constructed, using as a basis an early form of the Character Education Inquiry. It contained thirty-six descriptions of concrete situations involving academic honesty. The respondent was asked to indicate for each item whether he thought the described action was justified, unjustified, or doubtful. Evidence showed that the blank was sufficiently reliable and valid to justify conclusions concerning groups.

The limits of space do not permit reproducing the entire blank, but the two descriptions which follow illustrate the concreteness of the situations presented in the test.

> 2. I had not been feeling well for a week. My theme was due on Friday. On Thursday night I had such a headache I couldn't think. But in order to come through with my work, I got my roommate to write it for me.
>
> 36. I used a crib on the examination because I felt that if I memorized the crib and then forgot it all after the examination it would be no worse than copying from the crib. I see no difference between copying from a crib and then destroying it, and copying from mental pictures and then letting them fade away.

In Table I a brief statement summarizes each of the thirty-six situations as described. The figures are percentages of 494 representative stu-

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TABLE I

Average Percentage of Student and Faculty Responses Not Justifying the Actions

Summary Statement of Action Described	All Students	Faculty Members
(1)	(2)	(3)
1. Students worked up assignment together. Each handed it in as his own	77	96
2. Ill pupil had roommate write theme for him	94	100
3. Wrote a review of a movie instead of the required book	52	80
4. Copied from neighbor because he lacked confidence	89	93
5. Wrote paper from roommate's notes when too few reference books were available	37	54
6. Student did not call attention to instructor's error in scoring a paper when in his favor	62	66
7. Copied in snap quiz when unprepared	91	98
8. Wrote "original story" by using another's plot, substituting other characters and wording	60	69
9. Cheated on final examination for sake of fraternity	94	98
10. Used suggestions accidentally seen on neighbor's paper in quiz	65	54
11. Borrowed specimens instead of collecting his own	62	89
12. Knowing notebooks were to be graded, he copied many notes from a former superior student	67	87
13. Used crib on memory type examination	90	96
14. Profited on examination from whispers of neighbors	20	35
15. Cheated under a boasting, egotistical teacher	74	78
16. Faked chemical experiment to meet requirements	59	80
17. Gave illegitimate excuse for overcuts	50	84
18. Copied on an examination to calm himself	81	96
19. Cheated in order to come up to parents' expectations in scholarship	88	98
20. Wrote stories for students in English to make college expenses	40	87
21. Bluffed way through course he deemed impractical	40	82
22. Roommates divided readings and exchanged notes	51	82
23. Cheated to be eligible for athletic team	82	96
24. Cheated under instructor who used sarcasm and ridicule	64	85
25. Altered figures in an experiment	57	83
26. Cheated when examination seemed unfair	87	89
27. Cheated to keep relative standing when others cheated	88	98
28. Used verbatim translations when forbidden	67	85
29. Arranged to sit by classmate for mutual aid when requirements seemed indefinite	92	96
30. Looked at copy of examination secured illegitimately by a fraternity brother before examination time	38	76
31. Copied to maintain eligibility for varsity managership	94	98
32. Used questionable methods in large class where instructor could not know individuals personally	82	93
33. Did anything to get by in class where lowest 10 per cent were doomed to fail	51	61
34. Copied partner's results on laboratory calculations	77	86
35. Used questionable methods for "I came to college to get an education, not to pass silly examinations"	74	93
36. Used crib in an examination because he considered it no less wrong than cramming	76	94
Number of cases	494	46

dents and 46 faculty members, respectively, who were unable to justify the actions described. It can be seen that the faculty members did not justify these actions so often as the students did. The only exception to this general tendency was in the item, "Used suggestion accidentally seen on neighbor's paper," toward which the faculty members were more lenient than the students. The faculty members agreed completely on only one item, "Ill pupil had roommate write theme for him"; all agreed that the action was unjustifiable. The wide variations within each group and the differences between the two groups raise interesting questions concerning the efficacy of an honor system based on any one set of standards. Table II shows the average percentage of responses given by various groups.

There is a real difference shown between the attitudes of men and of women students toward actions involving honesty. Men seem to be able to justify more of these actions than women. A detailed study of responses by classes shows that there is no reliable difference between Freshmen and Sophomores or between Juniors and Seniors, but the differences between the two lower classes and the two upper classes are significant. They show, moreover, that the two upper classes are less strict in their attitudes toward academic honesty than the two lower classes. The question might well be raised, "Is the college environment such that it tends to stimulate more lenient attitudes in respect to academic honesty?"

Some idea of growth in respect to attitudes toward academic honesty may be obtained by comparing the responses of groups of public-school pupils with those of college students on 20 of the 36 items previously submitted to pupils in public schools. In Table III it will be noticed that there is a gradual increase in the percentage of responses marked "unjustified" up to the sophomore year in college. From that point, the curve starts downward again. It would be interesting to know whether this is typical of conditions in most colleges. So far as is known, there is no factor in the selection of students for this particular investigation which would account for this phenomenon.

Are there forces at work in college and university which cause the idealism of beginning students to come into contact with academic realities in such a way as to build up a system of rationalizations which will justify actions not justified by a high moral standard? It will be remembered that Hartshorne and May found that in organizations where dishonesty resulted in desired rewards the older members were more dishonest than the younger members.[2]

How do the attitudes of students toward honesty on examinations

TABLE II

Average Percentage of Responses of Each Type Given by Various Groups

(1)	Justified (2)	Doubtful (3)	Unjustified (4)
Men	22	11	67
Women	20	10	70
All students	21	10	69
Faculty members	5	10	85

TABLE III

Comparison of Attitudes of Various Grade Groups on the Same Twenty Items

Groups (1)	Number of Cases (2)	Percentage of Responses Marked "Unjustified" (3)
Grade IX	200	52
Grade XI	70	60
Grade XII	80	71
Freshmen	104	79
Sophomores	148	81
Juniors	125	78
Seniors	117	77
Faculty members	46	93

compare with their attitudes toward honesty in preparing assignments? How do students' attitudes toward these situations compare with the attitudes of the faculty members. To find answers to these questions a comparison was made between the responses of the students and faculty members to the two types of situations. Fourteen of the 36 items relate to conduct during examinations, while 13 relate to conduct in preparing assignments. The remaining items cannot definitely be classified under either of these headings. The average percentage of responses marked "unjustified" by the students was 62 on the assignment situations and 77 on the examination situations. For the faculty members these percentages were 83 and 87, respectively. In other words, the students are considerably more liberal in their attitudes toward dishonesty in preparing assignments than in examinations. The difference here is 15 percent. The faculty members do not justify these actions in respect to either type of situation as much as the students, and there is a difference of only 4 per cent between their attitudes on assignment and examination situations.

In addition to the thirty-six items involving academic honesty the Personal Opinion Blank contained one item worded so as to indicate attitudes toward reporting observed dishonesty. The item read as follows:

> 37. Looking up from my examination as I was trying to think through the problem suggested, I saw John looking on a little card of notes in his hand. Knowing that the use of a crib was taking an unfair advantage of the other members of the class taking the examination, I later told the teacher what I had seen.

The responses to this item were grouped by classes and by sex as shown in Table IV. The 494 students—228 men and 266 women—were numbered in class groups in Column 2 of Table III. The number of faculty members was 46. The figures in Table IV show clearly that it is contrary to the attitudes of the majority of these students to report such a clear case of dishonesty as that described in Item 37. Only 32 per cent of all students indicated that they believed reporting the case was justified. The men were more opposed to reporting than the women. A smaller proportion of Seniors than of any other class definitely committed themselves to the belief that reporting this case was justified. Sixty-seven per cent of the faculty justified reporting, while 22 per cent thought this action was not justified. What is the relationship between attitudes toward academic honesty and attitudes toward reporting observed dishonesty? In another connection an "honesty score" was computed for each blank, using an arbitrary key which gave one point for each of the 36 items marked "unjustified." A comparison of these "honesty scores" with the students' expressed attitudes toward reporting observed dishonesty shows that those students who have the highest sense of honesty are most favorable to reporting observed dishonesty. This is an average ten-

TABLE IV

The Attitudes of Various Groups Toward Reporting Dishonesty (Item No. 37)

Class Group	Percentage of Responses of Each Type		
	Justified	Doubtful	Unjustified
(1)	(2)	(3)	(4)
Freshmen	30	24	46
Sophomores	37	13	50
Juniors	42	22	36
Seniors	29	23	48
Men	29	20	51
Women	36	20	44
All students	32	20	48
Faculty members	67	11	22

dency, however, and there are many exceptions. The conclusion seems justified that the majority of the students probably could not be depended upon to report academic dishonesty. When opinions vary as widely as the ones expressed by these persons and when rationalizations to justify most any action are so easy to construct, is it any wonder that honor systems seem ineffective and that the problem of academic honesty is always at hand?

Notes

[1] This is a portion of a committee report on the honor system at Ohio Wesleyan University. The committee was composed of Professors Diem, Lewis, Manchester, Murray with the writer as chairman.

[2] Reference to this and many other studies related to honesty and honor systems may be found in Mathews, C. O. *Bibliography on the Honor System and Academic Honesty in American Schools and Colleges.* (U.S. Office of Education, Pamphlet No. 16, 1930).

Paul R. Neureiter

Hitlerism and the German Universities

Last year's revolution in Germany has a special significance from the standpoint of education, and deserves the close attention of American educators. Acclaimed by its exponents as the spiritual rebirth of the nation, this amazing social eruption was largely the work of the young generation of Germany. Youths between the ages of eighteen and thirty constitute the backbone of the National Socialist party. The victims of an almost religious fanaticism, they won the victory for the movement against great odds; they are, in a large measure, to blame for the deplorable acts which have aroused the indignation of foreign critics. Thus the upheaval presents itself as another phase of the worldwide revolt of youth, and takes its place beside Italy's fascism (whose war song is characteristically entitled "*Giovinezza*," youth) and the godless movement of the young communists in Russia.

Many of these German revolutionists are still in the process of being educated at some institution of higher learning. Three-fourths of the student bodies of the universities are estimated to have National Socialist leanings, and a large portion are filling the ranks of the Brown Army as storm troopers and shock troopers. The students are making history, while their professors have to take the back seats in the political arena. Many of the latter are perhaps in sympathy with the new leadership; if they are not and were foolish enough to say so, they have probably lost their jobs. For the Nazi students owe implicit obedience to their party leaders, most of whom are outside the universities, and their revered commander-in-chief is Adolf Hitler, who finished his schooling with the eighth grade of an Austrian elementary school.

At the University of Berlin, world renowned for its brilliant faculty

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and at one time the mecca of American scholars, the student body is overzealous; it marches in the forefront of the movement, setting its pace. On the campus of this university there was conceived the grand idea of burning books with inimical contents in a public bonfire. There the students compelled the rector of the university, a man of international reputation, to resign because he refused to accede to their demands. Gone is the time-cherished tradition, equally respected by the republican and monarchial rulers of Germany for decades, which vested the university with absolute freedom of teaching and research, thus making it a state within the state. The ruling party has already announced that it will not tolerate any expression of opinion which is at variance with its own proclaimed philosophy of life. At some future time the government may make some profound changes in the organization and educational routine of the higher institutions of learning. If so, the views of the faculties will be ignored; the reform will be imposed, as it were, at a top-sergeant's command; for the doctrines of the National Socialist party are the supreme law of the land to which everyone must bow.

All this should give pause to educators abroad, as the astounding news emerges from a country whose educational plan seems to have made a deep impression on many American educators. In research, at least, the accomplishments of this system are undisputed. How was it possible that the German professors lost their hold on the minds of the students so completely? Why is the leadership of the great men of learning so conspicuously absent from the movement that is about to deflect the stream of German life into a new bed?

As a product of higher German education, I shall attempt to expose some of its intrinsic shortcomings so as to build up a plea for the curbing of certain pernicious tendencies in American education. To achieve this purpose it is necessary to illuminate the prominent differences in the philosophy and routine of the American and German universities. Let us suppose a student from an American college be transferred to a German university. What will impress him most strongly will be the great independence of the German students. He will heave a sigh of relief, for here the student is treated like an adult; he is given freedom. No attendance record is taken at any lectures; none of the red tape of securing excuses stings his scholarly pride; no dean of men or women exists. The auditor, for such is the student's official designation, does not debase his lofty intentions by working for credit. He studies, he imbibes at the spring of pure learning, he nestles avidly to the bosom of his Alma Mater whence he wishes to suckle the unadulterated milk of wisdom. He is held responsible for his work through examinations, to be sure, but nobody cares when he will take them; this, as is everything else, is left to the student's own discretion and initiative. At first sight, such a system must seem alluring to one who is repelled by the petty routine of the American undergraduate system of instruction. The underlying theory, as stated by its Continental exponents, is that a student who enters the university is to be considered a mature person by virtue of his having graduated from a secondary school, which is indeed incomparably more selective and exacting than the average American high school. But is a young man of about twenty years of age really mature enough to be his own master? Possibly not, the German educators will reply tartly, in which case he will eliminate himself and thus relieve the university of the thankless task of casting its seed on barren ground—Charles Darwin's axioms applied to higher education.

Self-contained and convincing as this theory seems to be, on close examination, it reveals itself to be specially adapted to the by-gone days when it was the sole purpose of the universities to prepare a select group of people for the professions. That such a definition of higher education would be too narrow under modern conditions will be demonstrated later in this article; but even if it held true, is not the vaunted student's independence a specious false front behind which the faculty glibly hides its indifference in respect to the student's well-being and spiritual progress? Does not such a system overemphasize the training of the mind while falling short of other objectives such as the building of character and the development of a wholesome civic attitude? Is it not likely to produce technicians in place of liberally educated men? No one who is familiar with both the German and the American school systems can fail to recognize that the problem of the undergraduate student in its enormous complexity has never been faced by the German educators. To let the students educate themselves means simply that the faculty is "cutting" its responsibilities.

The poverty of the undergraduate's social life in Germany seems pitiful to one used to American standards. The universities sponsor practically no extra-curricular activities. Cicero's famed dictum that he considered everything human his business is not part and parcel of the philosophy of faculties who busy themselves only with research, consider teaching a side line, and live in complete ignorance of and indifference toward the spiritual problems of their pupils.

Naturally, there are shining exceptions to this verdict. Fruitful contacts are made by advanced students in the seminars, where they work out their dissertations in a constant give and take between pupil and teacher, somewhat after the pattern of Mark Hopkins' ubiquitous log.

There are also many professors, notably in the small provincial institutions, who take a personal interest in their students outside the seminars and get close to their hearts. But these cases are not the rule. During the first three years of their studies, at least, the majority of the "auditors," who are, in the main, young men and women between the ages of nineteen and twenty-two, impressionable, emotionally unstable, and quite immature despite the eight years of Latin and five years of Greek they may have had in the *Gymnasium*, are severely handicapped by the absence of guidance and scarcity of inspiration. The latter is to come from the lectures, but unfortunately many of them are as dry and dusty as old church registers. In this aloofness of the faculties from the actual problems of the students I see one great weakness of the German university.

Another lies in the tendency toward overspecialization. In Germany, as in most of the countries of Continental Europe, the liberal-arts college, as we have it in America, has never found a favorable soil. In place of the American plan with its four divisions, elementary school, high-school, college, and postgraduate studies, there are on the Continent three types of schools which are to fill the gap between illiteracy and the Ph.D. degree. These are the elementary school, the secondary school—*Gymnasium* or *Realschule*—and the university. The secondary school is highly selective and requires such exertions of the pupils as would set many American college youths agog. The average student finishes this school at the age of nineteen, winding up his studies with a comprehensive examination, to which great importance and solemnity is attached. On successful passage of this "examination of maturity" he is entitled to admission to any university of the country; no further hurdles in the form of entrance requirements can be placed in his path. In point of knowledge, he is probably on a par with the average American college student at the end of the sophomore year. The German student's liberal education is now completed; immediately on entrance into the university he takes up a specific line of work with a closely integrated curriculum, for example, law, medicine, engineering, or chemistry. Such a compact system of education trains with great thoroughness; it utilizes the students' time to the fullest; it makes, however, for vocational misfits, fosters professional priggishness, and aggravates the overcrowding of the professions. Admittedly, it does not aim to equip young men and women with broad and liberal opinions which will make them adaptable to the ever changing situations of modern life. Thus higher education in Germany departs fundamentally from the objectives of the American college. Which system responds better to the exigencies of our times?

That the universities have been the most immutable feature of German life during a century of unprecedented changes should arouse our suspicion. The ideology of higher education in Europe can be traced back to the Middle Ages; it has stood still for decades. Entrenched behind the liberalistic phase of the freedom of teaching and research, the universities have balked every effort at reform which was repeatedly urged upon them by outside forces that wished to bring them more in line with modern social conditions. Thus the gulf separating the places of academic wisdom from the highways of German life widened constantly till today their prestige is largely predicated upon research in specialized fields while the nation at large does not look up to them for leadership in a crisis, and their own graduates and undergraduates are turning away from them to follow other gods.

The purposes of an educational system are functionally determined by the sociological formula which expresses the *Zeitgeist* within a certain nation. As this formula suffers evolutionary changes, the ends of education must vary accordingly. A live system is constantly redefined in consonance with the requirements of a kaleidoscopic age. On the contrary, where we find a system stubbornly clinging to the shibboleths of the past, we may expect it to be weighted down by a good deal of dead timber. The hyper-conservative record of the German universities would immediately suggest such a conclusion. Let us, however, avoid a jump unwarranted by the laws of logic; let us rather put the crucial question: What is the purpose of higher education in a highly industrialized civilization?

What is not the purpose, Germany has painfully found out in these post-war years. When she opened the doors to unrestricted democracy by the revolution of 1918, the equalitarian spirit invaded the domain of education. Higher education was no longer regarded as a privilege of the few; it was to become the prerogative of the many. Special means were conceived to make the upper brackets of the school system accessible to gifted and deserving children of the poor. Opportunity for everyone, regardless of the accident of birth, became the battle cry of the democratic reformers. The state lent a helping hand. The enrollment figures in the big universities mounted, but university authorities soon began to sense the danger. They called attention to the rapid filling up of the professions, whose ranks had been somewhat depleted by the war, to the scarcity of openings in industry, to the general shrinkage of opportunities because of the territorial and commercial losses imposed by the peace treaty of Versailles. In vain, the flood of aspirants to higher degrees rose steadily, irrepressibly. The credit inflation, incident to the execution of the Dawes and Young plans of reparations, staved off the disaster, but it swooped down with its full ruthless force during the ensuing economic crisis. The devastating effects of overeducation, deliberately encouraged and planfully stimulated, stood out in grim relief. Thousands of graduates, doctors of philosophy, of medicine, and the like, laboriously trained for specific lines of work, faced a hostile world which had no use for them. The enemies of democracy gloated, for another soap bubble blown by the theorists of equalitarian democracy had burst. Many of the victims turned radical. Swelling the ranks of the malcontents, they furnished a powerful shock troop for the party of revolt, Hitler's Nazis.

It is doubtful whether the graduate of an American liberal-arts college would face exactly the same situation. His education was liberal, not narrowly professionalized; in a way he resembles the man who used to preface his remarks on various topics by the words: "Unimpeded by any knowledge of the subject, I think." He is adaptable to many different lines. He will, for example, not resent working at a simple sales job while the graduate of a German university, deeply hurt in his professional pride, will be most unhappy at it.

By this account I do not wish to create the impression that the National Socialist insurrection had its primary cause in the described conditions. Certainly, there were many other and more important factors which contributed to its success. But it should be noted that the universities were hotbeds of Naziism, that its revolutionary fanaticism provided a welcome opportunity for self-expression to a large portion of the student bodies, that the educational authorities were spectators and in some cases sufferers at the hands of the revolutionists, and that the passivity of the educational leaders, their lack of foresight, their Bourbon aloofness from the actualities of a changing social scene, helped to produce a revolutionary attitude among the academic youth of the country.

Germany teaches a pellucid lesson as to what higher education should not be for. In a democratic, industralized society it must not purpose solely to prepare for the professions. Such a society requires higher education to be diffused among a large number of people, first for the sake of democracy, and second to relieve the labor market of congestion. As the openings in the professions are always limited to small numbers, professionalized mass education must result in a perilous disequilibrium with the inevitable concomitant of discontent and potential revolt. Our age, characterized by the prevalence of the machine power and penetrated with the recognition of human equality, calls for a type of higher education which trains broadly, liberally, and non-professionally, with adequate emphasis on those parts of the curriculum which aim at the development of the body, the character, and the civic attitude of the learner.

At no previous moment in history did such an opportunity wait on higher education. Will educators let it slip by? If they continue telling their clientèle that a college education is worth so many dollars and cents in enhanced earning power, which was a perfectly correct statement in the past, but is now true only in a greatly restricted sense, they are using a shoddy sales argument which will come back at their heads like a boomerang because of the public's observation that the professions are already overcrowded, and the rate of output in the graduate schools is bound to exceed the demand for degree holders, even after the somewhat problematical return of prosperity. If the spokesmen for higher education, however, can show the public that a broad-sweeping educational program on the college level, far from producing sophisticated, over-educated malcontents, is capable of sending sound, open-minded, able-bodied youths, possessed with a high civic attitude and morale, into the world, then the social value of such a higher education will not have to go begging for recognition. Unfortunately, the German educators did not meet the problem with rifles in hand. Too much engrossed in research—from whose value no one wishes to detract—they underrated the danger. The omnipotent Nazi party declared categorically that the overcrowding of the universities must be stopped, and at the writing of this article a decree was promulgated by the Ministry of Interior barring some thirty thousand graduates of secondary schools from entrance into the universities and establishing a ratio of ten to one between the numbers of men and women enrolled.

It is my purpose to demonstrate to American educators that in the genesis of the Nazi revolution, the unresponsiveness of German higher education toward the problems of a changing civilization played an important part. American educators will have to marshal all their energy in order to check a similar development in this country. In the preceding exposition I labored to prove the soundness of the theory on which liberal college education has been based. I also stressed the dire lack of spiritual guidance which vitiated the work of the German university. It is difficult to shun the conclusion that the liberal-arts college constitutes the most valuable element in higher American education, and it is lamentable that recent trends have been playing havoc with this part of our educational system.

William J. Brink

Selecting Graduate Students

One of the difficult problems confronting graduate schools in institutions of higher learning is that of developing effective admission procedures. This problem has become more acute with the rapid increase in the number of students seeking advanced training. During the past few decades enrollments in graduate schools have more than doubled each decade. Whereas in 1900 there were fewer than six thousand students enrolled in graduate schools, in 1937 there were approximately eighty thousand. In the field of teacher education it is quite generally recognized that the usual four-year college program is no longer adequate to provide the cultural and professional education needed by teachers today. Teachers of experience on all levels of school work feel that graduate study is not only helpful but essential if they are to keep abreast of the times and are to grow professionally. The Master's degree is rapidly being considered a prerequisite for teaching.

It is reasonable to expect that as the number of students who desire to pursue graduate work increases, there will be a corresponding increase in the variability of the group applying for admission. By permitting mediocre and inadequately prepared students to undertake graduate work, injustice is done not only to the students but to society as well. It is obviously unfair to encourage young people to embark upon graduate study unless they are intellectually qualified for it, unless their undergraduate preparation is of such character as to make further study profitable, and unless they possess essential personality characteristics. Moreover, society has a right to expect of those to whom advanced degrees are granted a type of leadership and scholarship which is probably beyond the possibility of achievement for some who seek admission to

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graduate schools. Therefore, graduate schools face the problem of developing more selective admission procedures and of encouraging only those to continue for whom there is reasonable probability of success.

If this generalization is sound, how can it be applied? In the study of this problem the committee on admissions of the graduate school with which the writer is associated desired information concerning admission policies and practices in other schools. This paper presents some of the major findings of the investigation. By means of questionnaires, bulletins, and through interviews with deans, information was secured from 88 graduate schools on such questions as: What is the nature of the administrative setup for admitting students to graduate schools? What factors are considered in examining applications for admissions? What attention is given to the students' preparation in the fields in which they wish to pursue graduate work? These are but a few of the questions which arise in any attempt to develop satisfactory methods of dealing with the problem of admission. The 88 institutions are divided almost equally between state and private institutions. Twenty-seven are members of the Association of American Universities, and all are recognized by this association. The interest in improving admission procedures is indicated by the fact that responses came from 83 per cent of the institutions invited to participate.

One of the questions asked in this survey was: What is the nature of the administrative setup for admitting students to the graduate school in your institution? A summary of the responses of the 88 schools participating is given here:

A.	Admission determined by the central admissions office for the entire university.	19
	Central admissions office, dean of the graduate school, and department head	2
	Central admissions office and a committee of the graduate school	2
	Central admissions office and department head	1
	Central admissions office, committee of the graduate school, and dean of graduate school	1
	Central admissions office and dean of the graduate school (irregular cases determined by committee of graduate school)	1
B.	Admission determined by the dean of the graduate school	14
	Dean of the graduate school and head or representative of the department concerned	15
	Dean of the graduate school and committee of the graduate school	2
	Dean of the graduate school, central admissions office, and department head..	1
	Dean of the graduate school, after acceptance by head of the department	1

	Dean of the graduate school and head of the department in cases of deficiencies; in exceptional cases by the graduate council	1
C.	Admission determined by a committee of the graduate school	13
	Committee of the graduate school and head of the department	6
D.	Other procedures mentioned: Admission determined by graduate committee and registrar	1
	By dean of the graduate school and department head recommending and approval of the graduate council	1
	By dean of the graduate school, but evaluation of transcripts cared for by central admissions office, assisted by department heads with respect to departmental requirements	1
	By executive committee of the appropriate school	1
	By committee of the department in which the student expects to study	1
	By registrar of the university on a tentative basis to prove ability	1
	By university committee on advanced standing	1
	Applicants must satisfy admissions office that undergraduate work is completed, the head of the department that he is ready to pursue advanced work; the dean exercises supervision over both	1
	The department head determines individual competency and subject-matter prerequisites. The dean recognizes the previous degree and training; then handled by secretary except in doubtful cases which are decided by the dean and department heads	1

This analysis indicates that administrative organizations for handling admission in most graduate schools are of three general types. According to the first, responsibility for admissions is assumed largely by a central admissions office for the entire university. According to the second, admission is determined by the dean of the graduate school, who, in many cases, confers with the head of the department concerned or with a committee of the graduate school. According to the third, responsibility for admissions is placed in the hands of a committee of the graduate school which in some cases confers with department heads. In nearly two-thirds of the cases, responsibility for admission rests with the graduate school.

The second question on which information was sought related to the criteria which were employed in the selection of students. The question was asked, "What factors do you consider in admitting students to your graduate school?" Respondents were requested to indicate the relative attention given to each of the various factors; that is, whether a certain factor is given considerable attention, some attention, or little or no attention in deciding admission. The responses to this question are summarized in Table I, which indicates that the factors given most attention in deciding admissions are the undergraduate scholarship record and the institution from which the student has received his Bachelor's degree. More than half of the graduate schools attempt to secure perti-

TABLE I
Factors Considered in Admitting Students to Graduate Schools

Factors (1)	Attention (2)	Some Attention (3)	Little or No Attention (4)	Not Checked (5)
Undergraduate scholarship record	76	7	2	3
Personality of student	16	36	15	21
Performance on the psychological examination	0	5	47	36
Performance on general-achievement test	0	3	48	37
Performance on reading test	0	1	47	40
Interview with student	21	32	14	21
Health of student	12	31	22	23
Institution from which student has received his Bachelor's degree	71	16	0	1
Ability to speak English	26	24	12	26

nent information concerning applicants by means of personal interviews, especially in cases where there may be some doubt concerning admission. Little use is made of tests. A few institutions are now experimenting with the use of psychological examinations, general-achievement tests, and reading examinations. In addition to the factors mentioned, four institutions state that they give considerable attention to recommendations from former instructors. Two schools stress the importance of motive or purpose in undertaking graduate work. Other items mentioned are: honors, Phi Beta Kappa, plans for research work, successful experience subsequent to obtaining Bachelor's degree, adaptability for placement, and qualifying tests given by some departments.

In answer to the question, "What regulations have been established by your graduate school with reference to the general nature of the student's undergraduate work?" 21 institutions indicate that they have no general requirements in this connection. Thirty-eight others state that the general pattern of undergraduate work must approximate that which the students would have in their institutions. Adequate preparation in the field in which the student expects to carry on graduate work is stressed by nearly all of the institutions included in this study. Forty-two institutions indicate that applicants must have completed a satisfactory undergraduate major, and of these, thirty specify quantitative requirements in terms of semester hours, the number varying from 18 to 40 hours. Eighteen institutions indicate that applicants must satisfy the heads of the departments in which they intend to work regarding the adequacy of their undergraduate preparation in the fields in which they wish to specialize. Only six institutions report that preparation in the field of graduate study is not given consideration in deciding admission to the graduate school. In these schools, however, students are expected to make up any undergraduate deficiencies they may have.

Although foreign languages are frequently required for the Bachelor's degree, they are rarely required for admission to graduate schools, except, of course, for students who expect to major in a foreign-language field. Only six of the eighty-eight institutions responded affirmatively to the question, "Do you require a reading knowledge of a modern language or any other similar competency for admission?"

It not infrequently happens that applicants for admission to graduate schools have deficiencies in their chosen fields of concentration. Most institutions have quite definite policies in dealing with cases of this kind. Only three graduate schools deny admission to students who have any undergraduate deficiencies, and but two schools indicate that applicants are not admitted until they have made up all deficiencies. Sixty-seven institutions state that students who otherwise meet the requirements for admission are permitted to make up their deficiencies as members of the graduate school. This general policy is qualified in several instances. Four schools indicate that such students could not become candidates for the Master's degree until the deficiencies are made up. Five of them admit such students as special or unclassified while they are making up their deficiencies. Five others state that no graduate credit is given for make-up work. Eight institutions emphasize the point that students are permitted to make up only a limited number of deficiencies, and that if the deficiencies are extensive, they must be made up in the appropriate department.

Except in irregular cases, nearly all of the graduate schools notify students concerning admission after they have submitted transcripts and other items of information requested by the institution. In only three schools is it the policy to defer notification of admission until students have completed a specified amount of course work, usually not more than ten semester hours. Students who do not give convincing evidence of ability to pursue graduate study, or who are somewhat lacking in undergraduate preparation in their chosen fields are frequently admitted on probation. Upon satisfactory demonstration of competency and the elimination of deficiencies, they are given full admission to the graduate school. Several of the responses indicate that applicants who come from unaccredited colleges are admitted only on probation. In a few institutions the initial course work taken by such students, even though of graduate character, is not counted toward an advanced degree.

Several problems which should be given most careful consideration become evident from this study of current admission practices in graduate schools. The most important of these relate to the development of more reliable methods of selecting graduate students. Although the undergraduate scholarship record is probably the most important single criterion of success in graduate work, instances of considerable disparity between undergraduate and graduate records may be found. Occasionally, students of exceptional ability make only mediocre undergraduate records because of poor health, lack of interest, insufficient time for study, or other reasons. On the other hand, students of inferior ability sometimes succeed in making good records through sheer perseverance. Moreover, little is known concerning the effect of varying time intervals between undergraduate and graduate work upon the predictive value of scholastic records. Practical experience may develop motives for study which did not exist during the undergraduate period. Although the rating of the institution from which the student has received the Bachelor's degree is generally given considerable attention, there is little evidence to prove the significance of this criterion. A recent study casts considerable doubt upon the reliability of institutional ratings in forecasting success in graduate work.[1]

It is becoming increasingly apparent that neither the scholastic record, nor the rating of the institution, nor a combination of these provides an adequate basis for admitting students to graduate schools. The improvement of selective admission processes involves more than an accumulation of information concerning applicants, important as this may be. Of fundamental importance is it that graduate schools think through and make known their objectives. It is only in terms of the objectives which an institution seeks to fulfill that intelligent selection of students can be made. To illustrate, it is a well-known fact that the vast majority of students in our graduate schools expect to enter the teaching profession. If, therefore, one objective of a graduate school is the education of teachers, this function should be considered in the selection of students. The prerequisites for success in graduate work and in teaching must be ascertained in order that they may serve as criteria for admission. The fact that scientific studies of the relation of various factors to teaching success have in most cases yielded low correlations, adds to the complexity of the problem of identifying valid criteria, but does not render the problem impossible of at least a tentative solution. Moreover, coefficients of correlation must be interpreted in the light of variable errors present in two sets of data which are correlated. High correlations have been found between the intelligence test and success in college. Although a distinguished scholarship record would appear to be eminently desirable, other factors such as personality characteristics, reading ability, health, and interest in teaching may be of equal significance. Recently, the importance of a broad cultural education in addition to specialization within one or more areas has been stressed in the preparation of teachers. This suggests the desirability of devising tests which provide information concerning students' cultural backgrounds and their knowledge of the fields in which they expect to teach.

If the approach to the selection of students here suggested is sound, graduate schools are confronted with four obligations: first, to decide as definitely as possible what their objectives are; second, to analyze these objectives in terms of the prerequisites which prospective students should possess; third, to select or develop techniques appropriate for the study of each applicant for admission; and fourth, to encourage only those to pursue graduate work for whom there is reasonable probability of success. Are graduate schools ready to meet these obligations?

Notes

[1] Edwards, Marcia. "The Accreditation of Colleges on the Basis of the Success of Their Graduates in the Graduate School." 1935. A Doctor's dissertation on file at the University of Minnesota.

The Reporter

The officials of Yale University have announced that hereafter all undergraduates, except freshmen, may own or operate automobiles at New Haven if they have the written consent of their parents and the dean of the school in which they are enrolled. (1936)

A project which will be continuous was launched last month at Massachusetts State College. Using a movie camera instead of a pen, Rolin H. Barrett, college cinematographer, has begun the filming of a continuous history of activities of the state college. The movie record will include views of faculty and student buildings, campus improvements, visitors of note, and special events such as Dad's Day programs, the annual horse show, the winter carnival, and other social events. Teaching and laboratory procedures and equipment, as well as extra-curricular activities, will be incorporated into the record. One use of this visual record of the college activities will be as an aid to vocational guidance for entering students. (1939)

Robert M. Hutchins

The Higher Learning in America

My subject is the higher learning in America. I am sure that when I have finished you will feel that there is very little of it, and very little hope for what there is. And this last is in a measure true. The universities of the country rest on a foundation of elementary and secondary public schools. Most of the higher learning in America is carried on in tax-supported state universities. The situation of all these public institutions is now so critical that unless there is some change in the attitude or condition of our people there is indeed little hope for the continuation of that higher learning which is my theme.

The principal function of the private universities in the educational system is to supply the leadership or the recklessness which shows the public institutions what they should or should not attempt. They have led the way in research and in educational experiment and have demonstrated to the legislatures that it is a good thing for the community to pay professors a living wage. Such payment is not charity which the professor should accept with humility and reward with silence on controversial issues. It is an investment in intelligence. The private universities have struggled to maintain the right of the scholar to exercise his intelligence even though it led him to criticize established policies or institutions. Their example has enabled most state universities to take the same position, with infinite profit to their states. These spiritual values the private universities will always have for the educational system as a whole, but their income, like that of other aggregations of capital, is now so much diminished that they cannot hold out much longer in their effort to present education and research in their proper economic perspective. Our people must, therefore, themselves believe that tax-supported education

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and research are important and must themselves determine to protect them. At the present time the ordinary American gives little evidence of any such belief or any such determination. We hear, instead, that the cost of government must be reduced.

Although I favor reducing the cost of government if it can be done without crippling essential services, I doubt whether in the long run the total cost of government can be reduced, or should be reduced, or will be reduced, but certain costs of government could and should be reduced. The total cost of government could and should be redistributed, with certain items increased, and other items eliminated. The increases that we may expect in Federal expenditures to support the social services and to provide for the relief of the destitute are far greater than any reductions that can be accomplished by tinkering with bureaus. Even the savings that would come from a reduction in the army and navy and from limiting aid from the Veterans' Bureau to those who deserve it would be swallowed up by the new obligations which the Federal government must assume because of the collapse of our industrial system.

Take the case of public education alone. The principal difficulty faced by the schools has been the tremendous increase in the number of pupils. This has been caused by the advance of the legal age for going into industry and the impossibility of finding a job even when the legal age has been reached. In view of the technological improvements in the last few years, business will require in the future proportionately fewer workers than ever before. The result will be still further elevation of the legal age for going into employment, and still further difficulty in finding employment when that age has been attained. If we cannot put our children to work, we must put them in school.

We may also be quite confident that the present trend toward a shorter day and a shorter week will be maintained. We have developed and shall continue to have a new leisure class. Already the public agencies for adult education are swamped by the tide that has swept over them since the depression began. They will be little better off when it is over. Their support must come from the taxpayer.

It is surely too much to hope that these increases in the cost of public education can be borne by the local communities. They cannot care for the present restricted and inadequate system. The local communities have failed in their efforts to cope with unemployment. They cannot expect to cope with public education on the scale on which we must attempt it. The answer to the problem of unemployment has been Federal relief. The answer to the problem of public education may have to be much the same, and properly so. If there is one thing in which the citizens of all parts of the country have an interest, it is in the decent education of the citizens of all parts of the country. Our income tax now goes in part to keep our neighbors alive. It may have to go in part as well to make our neighbors intelligent. We are now attempting to preserve the present generation through Federal relief of the destitute. Only a people determined to ruin the next generation will refuse such Federal funds as public education may require.

Federal assistance to public education, however, will not tend to lighten the burden of the states and local communities. Their educational expenditures will increase, too. If in an emergency like the one we are enjoying at Chicago it is necessary to reduce them temporarily, there is one way to do it and only one. Let the duly constituted representatives of the community determine how much it can afford to spend on education. Then give the educational administration authority to determine what specific changes and reductions should be made to bring expenditures within income. This issue has been tried by the Chicago newspapers. Apparently, the general public is to determine not merely how much money can be spent on education, but also how it shall be spent, and we have had extended discussions by laymen as to whether certain subjects should or should not be studied by the young Chicagoan. Yet we have one of the ablest superintendents in America, honest, intelligent, expert. If he had the authority he could, I have no doubt, produce immediate economies in the school system without damage to the education of our children. Independent attempts on the part of the Board of Education to dictate specific economies will merely contribute to the perpetuation of chaos.

I am willing to concede, therefore, that the total sum which any community may be able to spend on public education this year or next may have to be reduced. If so, the community should determine how much it can spend; the educational administration should determine the manner of spending. But by this concession I do not mean to imply that I think even a temporary reduction in educational expenditures is a good thing. In so far as economy means efficiency, it is, of course, beneficial. But in general the schools of America are undernourished rather than too richly fed.

For years we have been struggling to secure a decent salary level for teachers. We have done this not because we are sentimental about teachers, but because we have realized dimly the importance of education and have tried to get intelligent people to go into it as their life work. Now the easy way to save money is to reduce salaries. It requires no thought, no effort, no reorganization. It can be done by anybody who understands the rudiments of arithmetic, but it is, in my opinion, the most stupid and most shortsighted means of cutting the costs of education. We wish to make the teaching profession attractive by adequate and secure compensation. We shall never have a respectable educational system until we have accomplished this aim. We defeat this aim if we reduce salaries, and, in addition, we miss the only advantage of this depression, the opportunity to increase efficiency through house-cleaning and reorganization, the opportunity, in short, to give a better education at lower cost. A policy of salary reduction will result in lower cost; it will result, also, in poorer education.

These remarks apply in general to other governmental costs. We are not interested so much in a cheap government as in a good one. The citizens of Milwaukee, I suppose, do not greatly object to the high cost of local government. They get something for their money. There have been times in the history of Chicago, however, when we were justified in thinking that the administration ought to pay us for living there. Although there is doubtless extravagance in American government, including public education, and although we should make every effort to get rid of it, we should chiefly direct our energies not to the negative task of reducing the cost of government, but to three positive undertakings: getting good government, getting a rational organization of government, and getting a decent system of taxation. This country is still the richest in the world; for the things it ought to have it can well afford to pay. But much of its money is now squandered on a horde of local governments whose organization is simply fantastic. Nor can the country get the money it needs through an antiquated and iniquitous taxing system. As long as the preposterous general property tax is the chief source of local revenues, we shall be unable to meet the demands which our civilization inevitably places on local governments. As long as a person who does not own real estate but has an excellent income may make no contribution whatever to the support of these units, while the farmer who owns real estate but gets no income at all sees his property sold for taxes, we may expect to hear that the cost of government must be reduced. Those who believe that the cost of government must be reduced might better direct their attention to correcting the iniquities and antiquities of our revenue system. If they do not do so they will find that the cost of government, however small, still falls so inequitably upon our people as to justify weeping and wailing and gnashing of teeth. And they may find, too, that however successful their efforts have been temporarily and in certain areas, the cost of government in the long run and in other areas is greater than ever before.

"Reduce the cost of government" is likely to degenerate into a slogan like those two other meaningless war cries, "Balance the budget," and

"Take the government out of business." The budget is not balanced, and we should be sorry if it were. The government should know when it can balance its budget; it should know how it can do it. But there is no mystic charm about any particular twelve months. The attempt to balance the budget in the current fiscal year would lead either to back-breaking taxes or the elimination of governmental services which even certain Chicago newspapers would regard as essential. The budget has been unbalanced not less than 48 times in our history. In a business civilization the government cannot be taken out of business. If it could be, business itself would be the first to want it back. Those who want it taken out of business usually mean that they wish to derive every advantage from natural or legal monopoly or from governmental subsidy and protection without submitting to governmental regulation in the interest of the general public. If we reduce the cost of government, we must be sure that we are not sacrificing those interests and institutions which alone make our government possible.

Now you may suppose from what I have said that I regard all educational institutions as perfect and feel that all they need is more money. This is scarcely true. In spite of a life spent entirely in association with them, I have a high opinion of educational people. As the teachers of Chicago have shown, they are likely to be loyal, self-sacrificing, and disinterested. But largely because of their preoccupation with the problem of quantity, colleges and universities have until recently had little opportunity to develop higher learning in America. They have been concerned with teaching. In the last fifty years professors in the great universities have been able to secure a little time and more money to do some higher learning of their own. This they call research. They have even been able to set free certain advanced students and to encourage them to do a little learning, too. This is called graduate study, or preparation for the Ph.D. degree. But the student from the freshman to senior year, from eighteen to twenty-two, has been permitted to do almost no learning. He has been taught. He has continued the process to which he has been accustomed in high school. This has involved taking a course, memorizing it, and repeating as much of it as may be demanded on an examination given by the teacher who taught it. If the facts were handed back without too much mutilation, the course was passed, counted as one point toward college, and forgotten.

In college the student proceeded in the same way. He took thirty-six courses, forgetting each one he passed as he passed on to the next. If he passed them all with a general arithmetical average of the appropriate height, he was sent forth into the world as an educated person. It must be clear, however, that if he was educated it was not the fault of the system. Or to put it another way, he could perfectly well pass without learning anything. The system was a system of acquiring credits, rather than acquiring knowledge. Thirty-six credits with an average of 65 meant that our friend was educated. Thirty-five credits with an average of 64 meant that he was not. It will not surprise you to learn that in a law school of which I once was dean we had to buy an adding machine to tell whether our students graduated.

Since the examinations were always given by the teachers who taught the courses, the intelligent student realized that he should give quite as much attention to the teacher's curves as to the significant features of the subject. Since the subjects were frequently unrelated and the examinations always so, it was unnecessary for the student to do any thinking about the course in relation to other courses. It was unfair for a teacher to assume in an examination knowledge gained in another subject. This game was not hard to beat, and so the bright and restless student naturally turned to one more stimulating and challenging—those highly organized extra-curricular activities that have characterized the American institution of higher learning. The college retaliated by requiring attendance at classes. For some reason or other (probably it was connected with the difficulty of dealing with large numbers) the college also set minimum time requirements. The student either had to stay in college a certain period or had to pay extra if he wished to do extra work. Additional obstacles were thus placed in the way of excessive use of the mind.

These regulations affected the deliberate student as well as the brilliant one. The slow but substantial citizen had to adjust himself to his new environment with a fair degree of rapidity or find himself on probation or perhaps expelled. The system was made for the average student, it had to be. But both the brilliant and the slower student of solid worth suffered from it, and I have been unable to think of any compensatory advantage which the average individual secured. The University of Chicago decided two years ago that it did not like this system. It decided to change the system. And what is more startling in academic life, it actually did so.

In the first place, it determined that it would try to give a good general education. It, therefore, created a new college, having jurisdiction over the first two years. The object of that college is to try to find out what a general education ought to be. The members of the faculty of that college are persons who are interested in that problem. They have completely reorganized the curriculum, and have developed four courses in the fields of the social sciences, the biological sciences, the physical sciences, and the humanities, with a view to presenting the principal ideas in the four major fields of learning as the basis for a general education.

Even in this college the students are not required to attend classes. Even here there are no arbitrary time requirements. Even here credits are abolished; even here there are no course examinations. One quarter after he has appeared for the first time on our campus the student may present himself for the general examinations covering the whole college course, which is expected to take the ordinary student two years. If he passes these examinations, he may receive the college certificates and may proceed either to try to find a job or go into one of the upper divisions. If he fails in these examinations he may take them again; and he may repeat this process as often as he likes, unless or until he becomes a public nuisance. The general examinations alone, not credits, determine his progress.

The general examinations which test the acquisition of a general education are not given or graded by the teachers who have taught the courses. They are administered by an independent Board of Examinations which has a large technical staff. The purpose of this Board is not merely to administer examinations; it is to study the various kinds of tests and experiment with new ones. By creating it we make clear our belief that the examining function is not simply an incident of the teaching function, but is a central problem by itself that demands the best attention we can give it.

In the same way we are studying the problem of educational and vocational guidance. This question has long been regarded as one that any teacher could answer. But under the Chicago plan a dean of students has charge of the whole group in Arts, Literature, and Science. His staff is engaged not alone in trying to give the best advice in the best way; but also in trying to develop new ideas and new methods. Fortunately, the inauguration of the new plan coincided with the opening of the residence halls for men, where the dean of students is conducting some promising experiments in integrating a housing project with an educational program.

I ignore here the changes which the new plan has produced in administration, research, and advanced study. For the sake of brevity I shall merely relate that which we have learned about undergraduate education in one year since we smashed the system. In the first place, we have learned about students. We have learned that students have courage. When we entered upon the new plan I was convinced that our enrollment would suffer materially. We were proposing an experiment. I was sure that all but the most brilliant or eccentric high-school graduates would be frightened away. Instead, we had more applications for entrance last year than ever before, and this year we had more than last.

We have learned, too, that the program appeals to the superior student. For four years up to last year our Freshmen had scored 187 on the National Psychological Test given to Freshmen in 153 colleges. Last year the new-plan group scored 202, and the University moved from tenth to fourth place in the national ranking. This year's Freshmen have jumped from 202 to 219.

We have learned also that students have independence. Printed syllabi or outlines of every course are available to all students. Sample examinations are placed in the hands of those who want them. As a result the independent student may if he wishes prepare himself for examinations without attending classes. Thirty-nine Freshmen in the past year presented themselves for examinations in subjects which they studied by themselves, without benefit of instruction. They passed, and passed with an average higher than the general average of the class.

We have learned, too, that students are self-respecting. Many educational people predicted that horrid consequences would ensue from the unheard-of freedom we were giving Freshmen. As a matter of fact, we had less wreckage than we have ever had. There was no increase in our almost invisible disciplinary problem. Attendance in new-plan classes where it was not required was 1.3 per cent higher than in old-plan classes where it was required.

In the second place, we have learned a good deal about the curriculum and examinations. We have discovered that it is possible to get students excited about learning. The freshman and sophomore courses are designed to develop that excitement, to stimulate thinking, to present ideas, rather than to cram the student full of information. We have drastically reduced laboratory work for students who do not intend to become scientists. Furthermore, we now have ready the first educational talking motion picture for college students. These will take the place of costly, time-consuming, and ineffective experiments in the sciences, and will have some influence on science teaching everywhere. We have learned that it is possible to draw up examinations that are really general and comprehensive, in the sense that they compel the student to think, to co-ordinate his information and the ideas he has acquired in his reading and his courses. But most important, we have learned that our examination system produces an absolutely unprecedented relation between the teacher and the student. Since the examinations are not given by the teachers who have taught the courses, we find that the student studies the subject instead of the teacher. And we have found, too, that the teacher actually helps the student to understand the subject, and that the student expects him to do so. When I was a student my idea was to get the best of the teacher. I had frequently more than a suspicion that the teacher's idea was to get the best of me. Now, at Chicago teacher and student join in a co-operative effort to beat the Board of Examinations.

Finally, we have learned something of the possible effect of educational ideas on the higher learning in America. On the one hand, our examinations and syllabi have been sent up and down the country for criticism. On the other hand, twenty-five hundred copies of the syllabi have been sold to educators outside the University. Presumably both sides have profited by the exchange. Since we believe that the great task of educational administration in America is to take the organization above off the neck of the organization below, we have so modified our entrance requirements as to permit the same freedom in the high school that we arrogate to ourselves.

And this, I venture to think, will be the most important consequence, if it has any consequences at all, of the new plan of the University of Chicago: it will be its influence on education throughout the country. It is an experiment. I hope it will always be one and that it will never solidify into a system. We have learned a little. We trust we shall learn more. If we do not learn what to do, perhaps we shall learn what not to do. The new plan means, therefore, that the University of Chicago, either as a model or as a horrible example, may sometime, perhaps, make some contribution to the higher learning in America.

JE Daniel L. Grant

Intellectual Life of Alumni

The idea that a college might organize itself for continuing the education of its students after they leave its halls is relatively new. Experience has been miscellaneous. The conception, if indeed it may be said that there is yet any clear conception on which any number of people agree, is hydra-headed in its beginnings. It is fair to say, for instance, that a part of the urge which went into the development of the Home Study Department of Columbia University was this recognition of the intellectual need of the alumnus, because the department had been built up by a former alumni secretary who had "discovered that one of the principal things that alumni clubs wanted . . . was something to do." And this "something" seemed to this official to be educational.

Amherst College was the first institution, soon after the war, to inaugurate a program of educational service for its alumni, proceeding "on the theory that a substantial group of alumni have an intellectual interest, and that it is our task to find that interest, and having done so, to contribute to its development in the best way possible." From its original announcement to its fifty-three hundred alumni, one thousand replies were received covering "the widest conceivable range of interest." The faculty undertook to guide those interested in their reading, organizing the different subjects according to the demand, the nature of the subject, and the discretion of the faculty committee in charge. This reading-course plan continued at Amherst aggressively for three years, and was then slowly abandoned in favor of a less pretentious and less exacting method. Meantime, however, the idea had spread to other institutions and has been developed since on a wide scale by the American Library Association.

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In 1925, Provost Penniman, of the University of Pennsylvania, announced an educational "service . . . based upon two principles: first, that education is a lifelong process, and [second], that the University as an institution devoted to the promotion of education should participate in such service." Eight different agencies were proposed for rendering this service to the alumni, on both a professional and a cultural level. And in undertaking these services it was believed "that the University is entering upon one of the most noteworthy advances in the history of American education." By 1928, the American Alumni Council was ready to recognize the intellectual aspect of the college-alumnus relationship as its basic and most important one. Since that time the Council has, in co-operation with the American Association for Adult Education, been studying and experimenting in this field of educational activity.

The conscious, planned intellectual services rendered in recent years by some of our colleges and universities to their alumni take many forms. Prominent, and perhaps foremost, of the methods used is that of stimulating and advising systematic reading. This, the reader's adviser service, has, in turn, taken varied forms. The original plan at Amherst was designed to organize a certain amount of reading material around a specified subject in which the alumni showed interest, characterized as "reading courses." Reviews of the best currently issued books have been distributed in certain alumni bodies, with no regard to a previous demand. Book reviews appear in alumni journals with increasing frequency. Smith College has developed the Amherst idea, but will permit one alumna to have only one reading course at a time, thus forcing greater concentration. Wellesley has undertaken to work out for its alumnae intensive reading courses for those who can come back to the college library and spend sufficient time to go thoroughly into any particular subject.

The response in any of these cases has not been particularly wide, nor sustained in any certain manner. Perhaps the most substantial experience in this field has been that of Smith College, where a fairly large and a reasonably well-stabilized group of alumnae have followed the work from course to course and from year to year.

The experience with short courses or institutes can probably be illustrated at its best by the experience of Vassar College. Beginning in 1924 short institutes were held in Alumnae House on the edge of the campus, matriculating in three years something over one thousand persons, of whom 60 per cent were alumnae. In addition to those who came and registered, faculty members and students flocked to certain conferences, doubling the attendance above actual registration. The institutes, for the most part, were conducted over the week-end, although some of them lasted for as much as two weeks. The conference on poetry was the most widely attended, while gardening represents the best-sustained interest, an institute being held each spring when the sap begins to rise. Some of the lecturers were drawn from the college faculty, and some from the outside. Lafayette College has had one experience with this sort of enterprise. In 1928, the alumni of the School of Commerce of New York University set up an institute of business, planned to renew itself each year. Harvard has had something of a similar plan in its School of Business, although not so rigidly limited to its alumni.

In addition to the reading plans and institutes, there are miscellaneous methods which have been employed with no great persistency and with little regard for the special needs of the alumni. Among these is the increasing number of articles of general educational value in alumni journals, but generally a poor competitor for the best of the commercial journals. Again, the visits of faculty to alumni dinners have become more educational and less personal and reminiscent. One or two institutions have made rather heroic efforts to reach their alumni through lectures. Urban universities usually have their subscription lecture courses which, it is expected, will appeal largely to resident alumni. Dartmouth College experimented with some lectures for its alumni arranged at commencement time, but with no great success.

A number of institutions undertake to have their alumni revisit the campus when the institutions are in normal operation, to hear discussions of various matters of intellectual interest, to revisit their old teachers, and otherwise to conduct an intellectual homecoming. The convocations held at Yale and the University of Pennsylvania on Washington's birthday are symbolic of this method. The radio has been resorted to for a few programs directed primarily at the alumni. Some institutions have combined their reading advice with the offer to supply books from the library, particularly on subjects upon which it is difficult to find data, and to alumni and alumnae in rural districts or otherwise separated from abundant sources of reading material. Some institutions have placed their resources at the disposal of their alumni for advanced or highly specialized research. Others have had special articles prepared for alumni publication, or issued special publications giving treatment to important matters of wide intellectual interest, and, in fact, some institutions have inclined to regard their press as being primarily founded for the alumni.

The real importance of all this experience is, perhaps, not so much in what has been accomplished, as it is an evidence of a new attitude. While fifty or sixty institutions have made some conscious effort in behalf of their alumni, there are hundreds which have done nothing. Many of them are now considering the matter for the first time.

Of course, it has not been possible to cover in a study of the experience in this field the permanent and stimulating relationship which often develops between the great teachers and their students. This sort of experience, however, is more personal than an essential part of institutional policy, and for this reason is beyond the pale of our immediate concern.

The approach to this problem of the continuing intellectual life of college and university alumni has not been the single-purposed one of devotion to the integrity and welfare of the intellectual life. It has been as often a by-product of the insistent urge to organize alumni for direct and immediate university service: political and financial. Perhaps, therefore, a more important question is, What is the present need and attitude of the alumni? A study of almost a thousand men and women who were graduated from fourteen colleges and universities has been made. The institutions represented are from different parts of the country and are distributed among the principal types of educational institutions: privately endowed universities, colleges, and state universities. The study does not undertake to formulate the definition of the educational experience of that enigmatic person, the average alumnus, but it does attempt to answer several important questions regarding interested alumni, and alumni with a far above average academic experience in the background. What educational opportunities have the best of them been using? Have these opportunities been adequate? Could the work done by other educational agencies be better performed by the colleges, and vice versa?

The alumni included in this study were fairly distributed over the different age-levels; 93 per cent held some academic degree, and the entire group holds an average of 1.5 degrees each; and 65 per cent are men. The group attended an average of 1.85 colleges or universities each; 60 per cent of the degrees were the foundational degrees in the arts and pure sciences and, if you include the Master's and Doctor's degrees as essentially cultural in emphasis, 78 per cent of the degrees would then fall in this group. Over 40 per cent live in large cities, and many of those reported in the country are in college towns where the educational advantages are superior. Thirty-one per cent are engaged in educational work, and, if to this group be added those in the learned professions, it is found that 60 per cent are in essentially intellectual pursuits. From every standpoint the group studied represents unusually favorable circumstances.

The questionnaire employed, and distributed through the offices of the respective alumni secretaries, revolved about the single question: "What educational opportunities have you used since leaving college?" The question was limited to "the past year" in certain cases in order to get a reasonably accurate answer and a coherent picture. A suggestive analysis of how this intellectual experience may have expressed itself was made, covering forty-five different suggestions and classified according to professional, cultural, and recreational and avocational interests.

What are the earmarks of an intellectual life? The standards set up are listed in the first column of Table I, in the second column is the percentage reporting participation of some sort, the third column gives the percentage of the total group which accounts for one-half of the activity reported by all, and the final column shows the non-participating group.

Summarizing the results, as judged by the seventeen standards, it is found that 33 per cent, in the aggregate, are a negative group, and that, on the other hand, one-half of the activity reported by the entire group is accounted for an aggregate of 18 per cent of the group studied. So much for the findings as to relative participation, showing, as they do, that the vital intellectual life of this group is concentrated in the experience of a very, very few of the best educated.

TABLE I

Percentage Record of the Answers Received from the Alumni

Activity (1)	Participating (2)	Accounting for One-half of all Activity (3)	No Participation (4)
Professional extension courses (since leaving college)	28	10	72
Cultural and extension courses (since leaving college)	13	4	87
Read professional books (last year)	66	22	34
Read cultural books (last year)	92	17	8
Spent money for books (last year)	70	12	30
Read professional journals (regularly)	77	23	23
Read magazines and journals of opinion	89	30	11
Read daily papers (regularly)	94	31	6
Visited museums (last year)	57	12	43
Travel, time spent (last year)	61	16	39
Lectures attended (last year)	82	20	18
Dramas attended (last year)	77	18	23
Movies attended (last year)	84	17	16
Music programs (last year)	82	19	18
Professional educational societies (member of)	62	17	38
Cultural educational societies (member of)	46	13	54
Avocation, time spent (last year)	67	26	33

What is the actual extent of participation, if the negative group be excluded from these answers? The readers of professional magazines averaged slightly more than two each regularly, of daily newspapers slightly less than two each, less than an average of five visits were made to the museum during the preceding year, less than four weeks were averaged in travel for that period, less than nine lectures were attended, nearly seven visits to the legitimate drama, eighteen visits to motion pictures, nine visits to musical programs, held an average membership in professional educational societies of less than 2.5, of about two in non-professional educational societies, gave approximately an hour a day to avocational or recreational interests, read on an average of nine professional books during the year, and of eighteen non-professional books.

Dividing the near one thousand individuals according to the type of institution from which they graduated—colleges, private universities, and state universities—it is found that on the average the college group shows a wider participation in the general cultural experience, the private university group ranks about midway, and the state-university group shows the smallest participation. In turn the college group voiced the strongest demand for cultural assistance, whereas the state-university group voiced the largest demand for professional assistance.

In addition to seeking the exact intellectual experience of this group, at the conclusion of each section of the questionnaire (professional, cultural, and recreational) this question was added—"In this specific connection is there anything which your college or university can do continuously to assist you?" When it was related to professional interests 42 per cent failed to answer, 14 per cent said definitely "No," 33 per cent said "Yes," 6 per cent explained that they are already supplied, while 5 per cent were uncertain. When related to cultural interests this question drew an even larger percentage of blanks, 62 per cent failing to reply, with a correspondingly smaller group who answered "No,"a similar-sized group who felt themselves already supplied, and with a slightly larger group answering uncertain. Twenty-five per cent replied "Yes." When we pass to avocation, hobbies, or use of leisure time the findings are even more negative. This time 64 per cent leave the question unanswered, and an additional 18 per cent say "No" and a meager 12 per cent said that there might be places at which the college could serve.

From every point of view, this brief study would indicate that the alumnus is a projection of what he was as an undergraduate, carrying with him the same interests, and, for the most part, failing to develop new interests which did not have some beginning during undergraduate experience, certainly no new attitude.

Experience in making the college or university a continuing intellectual servant of its alumni has been definitely limited or hampered from a number of points of view. In the first place, most educational institutions which have participated in any conscious program have backed into the work, being impelled by the demand for closer alumni contact and support. The program at Amherst was admittedly the product of an endowment campaign; similarly, a series of lectures published in the *Weekly* at Princeton resulted from a financial campaign; and, when Provost Penniman of Pennsylvania announced his phenomenal departure in higher educational procedure, it was admitted that the plan had been hatched jointly in the minds of the Provost and the Director of the Alumni Fund. President Little's widely heralded "alumni university" of Michigan revolved about the need of getting alumni to put more money in different aspects of University life in which they might be interested, to make a hobby of giving money to a pet project in the University rather than losing one's identity in a general fund for University purposes contributed by many folk. There is no escaping the fact that, more often than not, interest in the intellectual life of the alumni has been incidental to these other urges.

In the second place, expecting a small college, with a limited curriculum, to be able to respond to and to supply the varying needs of their alumni would require a profound enlargement of their staff, not to say their curriculum, in order to maintain the pace of their alumni. It is likely, therefore, that as soon as our higher educational institutions generally begin recognizing their obligations to the educational life of their alumni they will find themselves forced into co-operative undertakings. But this does violence to the whole genus of organized college alumni, whose loyalty has been as much to compete with another institution as it has been to return homage to Alma Mater.

In the third place, and as a corollary to what has just been stated, educational societies of one sort or another, such as the American Association of University Women, have been organized independently of any particular institution and have done some of the most vital work in supplying the continuing intellectual needs of the college-trained persons. Indeed, it is fair to say that the most vital and widespread work done so far has been by other organizations than the colleges themselves.

It is clear, therefore, that we must have a fresh approach if we are going to attack this problem on its merit and achieve something which is thoroughly worth while. Institutional lines will have to be forgotten. The agitator and the propagandist, who would ignore the fundamental importance of what transpired during undergraduate experience and start a reformatory in the life of older people, should be relegated to other undertakings, and not permitted to distort this picture. The hope of the movement is that we shall begin achieving a life on an intellectual level. The physical frontier with its emotionalism and camp meetings has passed. A new frontier of scientific endeavor has come and it is unemotional. The bugaboo of a hostile majority is having a hard time to impress such matters as the flow of electric current.

If we are to achieve a life on an intellectual level, we cannot approach the problem in parts assuming that the problem up to the day of graduation from college be one part, already provided for, and that we have left before us for an independent attack the province which comes after graduation. That won't work! We need an all-inclusive conception of educational endeavor into which the undergraduate experience can fit along beside the continuing non-resident intellectual experience of mature years. This means new time-patterns in education: we must escape the traditional time-pattern without which we have been unable to think educationally. There is no magic in a four-year curriculum, and yet we frequently act as though the four-year resident pattern must be preserved inviolate.

More important yet, a fresh approach means an opportunity to differentiate more clearly between training courses and essentially educative experience. The two have become hopelessly confused in recent years. The bulk of higher educational experience has shifted over in the direction of training courses, and away from educative experience, in response to America's scientific era. Already we award almost seven first professional degrees for every three degrees of the basic arts and pure sciences. This intrusion of training courses in undergraduate experiences has been only partially effective. More important, they have seriously confused the picture of educating one's self before getting so seriously concerned with training one's self. If, therefore, we approach the educational problem with a new time-pattern, we can begin to disentangle the medley which has been set-up in undergraduate days through a more rigid division between educative courses and training courses. Thus we will have opened up an entirely new era of possibilities for undergraduate experience. And it can be demonstrated that a great many of the training courses can more effectively be postponed until the stage in life at which they are needed, adult education courses, if we mean non-resident courses for mature folk. Certainly the stupid process of crowding them into undergraduate days has already hopelessly broken down.

If, therefore, an interest in the continuing intellectual life of the college-trained man and woman opens our eyes for basic readjustments in our whole advanced educational procedure, it will indeed have been a first-class contribution. If, on the other hand, it is only to be a by-product of alumni relationships organized to get money and political support, if it is going to be approached solely in terms of postgraduate experience with no fundamental influence upon what goes before, it will continue a makeshift and a fruitful field only for the propagandist and the agitator.

Carter V. Good

Methods in Teacher Training

Measurement of instruction and recognition of the factors contributing to scholarship are important aspects of methods of teaching. There is space only for a brief summary of investigations made to determine the relation between scholarship and high-school records, junior-college transfers, sex, fraternities, attendance, and other factors. It has been stated in this paper that the coefficient of correlation between high-school marks and college marks may be expected to range from about .40 to .50, or even higher. Thornberg concludes that students from large high schools are superior in scholarship in college to students from small high schools. He finds the most marked difference between students from high schools of less than one hundred enrollment and those from high schools of more than one hundred. He attributes this difference to variations in preparatory training rather than to native capacity. Students who enter college at the normal age or a year younger do the best work and are of a superior intellectual equipment. Women surpass men in scholarship and are a more highly selected group, as judged by intelligence scores.[1]

Eells points out the superiority of 317 students who transferred from junior colleges to the upper division of Stanford University over a five-year period. This superiority over other students is found in terms of intelligence, previous academic records, academic records in the upper division of the University, honors received, and enrollment for graduate work.[2]

The studies are in agreement that college women are superior to men in scholarship. Flickinger is of the opinion that women are more willing to do the type of memory work required in college and therefore receive higher marks. He substantiates this theory by pointing to the fact that

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men forge ahead of women in the graduate school where independent thinking plays a more prominent part than in the undergraduate institution.[3] Gowen and Gooch report that women are superior to men in scholarship in college and explain the difference by the superior high-school record of the women, which indicates that women are a more select group.[4] Toevs and Emerson seek to explain the superiority of women in scholarship by suggesting that they are a more select group in terms of native intelligence.[5] They also suggest that women are governed by stricter standards and have more regular hours and better study conditions, which may explain in part their superior performance. Cunningham offers some statistical evidence that popular notions concerning sex favoritism in marking are without foundation.[6] Paterson and Langlie recommend the use of objective tests and examinations to overcome the so-called pseudo-differences in scholarship between the sexes. They are of the opinion that there are a great many instructors who are rewarding the personality traits of women rather than measuring genuine scholastic achievement.[7]

Worcester, on the basis of studies secured from the registrars of ten colleges and universities, reports that sorority groups stand above nonsorority groups in scholarship, but that the scholastic standing of nonfraternity groups is higher than that of fraternity groups; the data also indicate that the standing of women is uniformly higher than that of men.[8] Reports of progress on a survey of fraternity scholarship in 118 institutions with five or more fraternities indicate the difficulties encountered in comparing institutions because of variations in marking systems.[9] Turner points out that decrease in scholarship is accompanied by irregular attendance and by an increase in absences from class.[10]

There are other studies of scholarship in relation to participation in athletics, vocational success, family background, exposure to Latin, years in college, background educational factors, and extra-mural study. A summary of these investigations is available elsewhere, as well as a resume of studies of detection of cheating, mental characteristics of cheaters, student attitude toward examinations, honesty, bluffing on examinations, safeguarding the administering of examinations, and the honor system.[11]

Closely allied with the problem of measurement of results are the problems of failure, of reading, and of study habits and remedial work. A few selected investigations may be cited to indicate the magnitude of these issues.

West reports reasons for withdrawal of students from the University of Minnesota for the college year 1922–23 when the total undergraduate registration was 9,025. He excludes from the count students who have died, those who have transferred to another unit of the University, those who subsequently returned, those who completed a course of study, or those excluded by the University. Aside from these groups, there is a net loss of 1,659, or 18.4 per cent of the year's registration. Of 1,302 classified cases of withdrawal from college the reasons given for such action and the percentage for each group are as follows: finances, 31.7; illness, 19.7; transfer to other institutions, 8.6; going into business, 8.4; lack of interest or discouragement, 7.5; change or lack of an objective, 6.8; illness or death in the family, 3.7; dissatisfaction with some phase of the University, 3.2; removal of family, 2.5; program or curriculum difficulties, 2.5; needed at home, 1.5; temporary work for experience, 1.3; marriage, 1.2; travel, 1.2; and miscellaneous personal reasons, 0.5.[12] Moon finds finances, health, home conditions, low marks, and dissatisfaction given most frequently as reasons for withdrawal from the University of Chicago.[13] Rogers reports that 21 per cent of the Goucher College class gave no reason for leaving without a degree, while 8.2 per cent were asked to withdraw because of poor work; other reasons for withdrawal ranked low in comparison with the foregoing items.[14] In general, those who left college prematurely were lower in intelligence and academic standing than the average student in the class in which they had been enrolled.

Potthoff and Moon studied the records of the entire group of 762 students who matriculated as Freshmen in 1919 at the University of Chicago. The records were followed through until the winter of 1925–26 when more than 99 per cent of the students had been graduated or left the University for other causes.[15]

Stone concludes that the silent reading ability of college students may be improved markedly, even in the case of the best readers. He states that the typical college student may readily increase his silent reading ability from 50 to 100 per cent.[16] Albright and Horning present an analysis of the reading disabilities of 1,053 college entrants.[17] Book discusses deficiencies in reading, relation between reading and academic success, need for remedial instruction, and the results of an experiment made to improve the reading ability of four groups of students. He concludes that the reading efficiency of two groups of students in how-to-study classes improved 102 per cent, and that in individual cases the increase was as much as 250 per cent. Book recommends that the reading ability of college Freshmen be determined accurately and that special remedial instruction be given in an orientation or how-to-study course for those who are deficient in reading.[18]

It is possible here only to enumerate some of the types of educational diagnosis and remedial instruction recently undertaken: analysis of students' use of time and study habits, tests of preparation for college work (reading, arithmetic, and English composition), case studies of students with academic difficulties, how-to-study classes, and remedial instruction in the tool subjects. The activity at Ohio State University and Miami University in the field of diagnostic and remedial work is well known. The current yearbook of the National Society of College Teachers of Education provides a good summary of studies which deal with educational diagnosis and remedial instruction.[19] It is natural to question the permanency of the gains secured through such remedial teaching. It is reported that Freshmen in one teacher-training institution, Miami University, during two months made more than five years' progress as measured by the Monroe Survey Test in Arithmetic.[20] If this amount of improvement is generally possible at the college level, certainly it seems economical and desirable to provide in high school and the elementary grades whatever additional time and repetition may be necessary to make learning in the tool subjects relatively permanent. This would relieve the higher institution of corrective work for which it can ill afford the time.

This paper has been concerned thus far with the measurement of student achievement by teachers. It seems appropriate to call attention to a rather pronounced tendency in certain institutions to secure student evaluations of their teachers. Only a few illustrative investigations can be referred to here.

Douglass concludes on the basis of a canvass of thirty colleges and universities that in all institutions student opinion is influential in rating the teaching efficiency of instructors, although only a few schools were frank enough to mention this fact specifically.[21] In only a few schools are formal evaluations sought from students and scientifically collected and interpreted. Eckhart presents a series of thirty-two questions which the teacher may ask himself in order to determine whether a high level of teaching efficiency is being maintained.[22] Bamberger reports a detailed list of items suggested by forty-eight supervising principals as factors which evidence skill in teaching. She does not suggest the list as a marking or rating system, but recommends it as a survey sheet or check list in the hands of the teacher and the supervisor to be used in the improvement of teaching.[23]

Remmers found no appreciable relation between the ratings of eleven instructors by 409 students in seventeen classes and the students' academic standing in those classes.[24] Holton procured replies from 663 teachers of vocational agriculture concerning the department of the college or university in which the individual's best teacher had been located.[25]

Education was mentioned as first choice by 201 persons, more than twice the number of times any of the other twenty-two departments were named. OBrien asked 460 college Juniors and Seniors to name the department in which was located the best teacher the individual ever had and found economics and history at the head of the list, while physical education was at the bottom. Students also ranked the courses considered boresome or valueless.[26] Rohrbach asked graduates and undergraduates in three state teachers' colleges to express in writing ways in which college teaching could be made more interesting. The criticisms received fell under six categories: organization of courses, assignment of work, stimulation to study, classroom procedure, testing, and personal traits of the teacher.[27] Kelly canvassed the alumni of the University of Minnesota in order to secure their opinions concerning the value of courses taken while in college, reasons for considering courses valuable or of little benefit, selection and training of faculty members, and methods of teaching.[28] Betts summarizes the reactions of 116 men and 419 women students in fifteen education courses at Northwestern University with respect to six broad aspects of instruction in education courses. These aspects of method include consideration of the courses in terms of difficulty, time spent, interest, effect, comprehension, and efficiency of teachers. The opinions expressed are rather favorable to the education courses under consideration.[29] Holton secured the opinions of 128 students concerning the merits of the lecture, discussion, and laboratory methods. His findings indicate the popularity of the discussion method with students and the disfavor in which the lecture method is held; seventy-four ranked the former method first, while only eighteen ranked the latter first.[30]

Crawford summarizes defects and difficulties in college teaching as reported by fifty-four college students. He groups the criticisms thus:

1. Defects of personality and temperament
2. Defects regarding academic freedom, propaganda, and dogmatism
3. Careless and unsatisfactory planning of courses
4. Lack of study and keeping up with the age
5. Defects relating to research, writing, and publication
6. Failure to teach on the student's level
7. Failure to be practical
8. Failure to develop the research spirit in students
9. Lack of personal interest in students
10. Failure to make courses interesting
11. Unsatisfactory practices regarding measurement
12. Defects regarding the use of the lecture method

13. Defects in the use of the discussion method
14. Lack of variety in teaching procedures
15. Failure to adapt the course to the individual student
16. Improper adjustments of work-load
17. Inefficient routine management
18. Lack of faculty co-operation[31].

While a number of the discussions of students' ratings of teachers and methods of instructions point out certain values which result from securing such evaluations from the learner, attention should be directed to the fact that there are scathing and sarcastic arraignments of students' judgment with respect to teaching merit.[32] Although the teacher should profit materially through familiarity with the reaction of the student, it is questionable whether selection of members of the staff and promotions should be based even in part on the subjective ratings of immature individuals.

In response to a request for some information relative to current educational reforms in teacher-training institutions, Gray received reports from forty colleges of education, one hundred departments of education in liberal-arts colleges, and forty-five normal schools and teachers' colleges. Over half of the replies contained valuable material. The methods employed by administrative officers in promoting the improvement of teaching include the following procedures:

1. A self-survey by means of which the important problems of instruction which the institution faces are brought clearly to the attention of every staff member for serious consideration.
2. Annual conferences of the teacher-training institutions of a state concerning problems of mutual interest.
3. Conferences each year with the teachers and administrative officers of the state to acquaint the staff with the needs of the field and to secure judgments concerning desirable changes.
4. The organization of the faculty into a special body to study instructional problems and to do constructive work.
5. Well-planned faculty meetings devoted to studies and discussions of the problems of instruction.
6. Departmental and special group conferences held at frequent intervals to consider matters relating to the improvement of instruction.
7. Prominent lecturers secured at frequent intervals to discuss specific instructional problems.
8. Members of the staff required to teach in the demonstration school as a means of improving their own techniques and of checking theory with practice.

9. Interclass visitations and conferences required.
10. Courses on college teaching, the psychology of learning, and other problems of higher education provided for new members of the staff.
11. A complete set of books relating to problems of instruction in higher institutions and the problems of teaching particular subjects provided in the dean's office or in the library for the use of faculty members.
12. Appointment of instructors to the faculty who are adequately trained.
13. Provision for sabbatical leave and for absences during the summer to study in recognized institutions.
14. Leave of absence granted during the regular year for travel or to do additional study and research in higher institutions.
15. Defraying expenses of faculty members who attend conferences and participate in other activities for the purpose of improving instruction.
16. Size of classes limited.
17. A news-letter issued at regular intervals from the dean's office devoted specifically to matters relating to the improvement of instruction.
18. Special efforts made to improve material equipment and library facilities.
19. Appointment of student assistants to aid instructors with routine duties.
20. Reduction of teaching-load when faculty members are assigned important responsibilities relating to the improvement of instruction.[33]

A few additional illustrations of the current interest in problems of method and related issues in higher education may be given by calling attention to selected major studies recently completed or under way. The results of the Modern Foreign Language Study have appeared in seventeen volumes.[34] It is reported that in spite of questionable techniques and special pleading involved in the Classical Investigation a decided improvement in the teaching of Latin has been effected.[35] The work of Hartshorne and May in the Character Education Inquiry has resulted in three volumes, two already off the press, dealing with the problems of deceit, restraint, and persistence.[36] The Carnegie investigation of college athletics has raised a storm of discussion in both educational and lay circles.[37] The *Commonwealth Teacher-Training Study* has significant implications for the reorganization of curriculum and method.[38] The Committee on Administrative Units of the Commonwealth Fund has sponsored sixteen studies, a number of which deal with teacher-training problems.[39] The studies of adult learning, sponsored by the Carnegie Corporation, have appeared in six volumes.[40] Within recent years an increasingly large number of the studies in the series, "Teachers College Contributions to Education," have been concerned with problems of curriculum and method in teacher-training institutions. The survey movement, as illustrated by Leonard, Evenden, and O'Rear's study of Lutheran colleges,[41] has made available information of great value. It is hoped that other institutions will follow the example set by the University of Minnesota in the experimental study of problems of learning and teaching.[42] The yearbooks of the National Society of College Teachers of Education should prove influential in the improvement of methods and in the reorganization of subject-matter in higher education.

Certain studies under way or partially completed are of vital interest to those engaged in the work of teacher training: the national survey of secondary education, subsidized by Congress and under the direction of the United States Office of Education; an investigation of history and other social studies in the schools;[43] a survey of the duties of the Federal Government to education, subsidized by the Julius Rosenwald Fund and under the direction of the National Advisory Committee on Education;[44] a study to determine the causes of existing maladjustment between secondary and higher institutions of learning over a four- to six-year period, by the Carnegie Foundation for the Advancement of Teaching working with the Joint Commission of the Association of Pennsylvania College Presidents and State Department of Public Instruction; a study of the possibilities of radio broadcasting as a mechanism for the education of adults, by Levering Tyson of Columbia University, for the American Association for Adult Education; and investigation of the use of radio in public schools, promoted by the Department of the Interior and under the direction of Commissioner Cooper of the Office of Education; a study of graduate education by Henry Suzzallo for the Carnegie Foundation for the Advancement of Teaching; a nation-wide survey of teacher-training institutions, subsidized by Congress and under the direction of the Office of Education with E. S. Evenden, associate director;[45] and surveys of the University of Chicago and of more than one hundred Methodist higher institutions by F. W. Reeves of the University of Chicago.

The studies summarized or cited in this paper should convince even the most skeptical of the sincerity of investigators in higher education and of the wide range of the problems canvassed in the field of curriculum and methods. Professor Toops of Ohio State University states that his forthcoming bibliography on higher education will include approximately twelve thousand items. However, the absence of conclusive data and crucial experiments relating to many aspects of teaching indicates the need for much additional investigation. Research in higher education is yet in its infancy.

Who will conduct this necessary experimentation? Certain workers in education have argued that college teaching will be improved when teachers, especially at the undergraduate level, give their time to instruction rather than to research. Harvard, Stanford, and Southern California have decided to grant graduate degrees for proficiency in teaching or administration rather than research. If this point of view and practice are generally adopted, where will be conducted crucial experiments to determine desirable teaching methods, curricular reorganizations, and administrative procedures? It seems unsound to suggest that a given group of investigators, possibly in the graduate school and in research bureaus, should conduct all investigations and experimentation that is carried forward, with no teaching contacts with students in the classroom and laboratory. It seems equally unsound to suggest that another group of workers, probably in the undergraduate divisions of universities, in separate colleges, and in public-school classrooms, should do only teaching. The highest type of educational progress and the most effective application of the results of research cannot result from such procedures. Granted that it may be desirable to award separate graduate degrees for proficiency in teaching, in administration, and in research, and that the first consideration of the instructor of undergraduates is effective teaching, there is still no divorce between good teaching and stimulating investigation. Adequate preparation in the graduate school for both teaching and research activities, together with an appropriate balance between classroom work and independent study in the college and university, is a solution easily suggested but difficult to accomplish. Adjustments in many higher institutions, particularly separate liberal-arts colleges and teachers' colleges, must be made in teaching load, and facilities for research provided, if any considerable number of instructors are to do independent research. Certainly, the teacher who periodically conducts an investigation in the field of his interest will bring to the classroom or laboratory an inquiring and critical attitude which should prove stimulating to students.

However, this final word of caution should be voiced. The pure scientist in laboratory or field may be concerned with two guiding principles only, an insatiable desire to discover truth and an absolute honesty in reporting it. The teacher-scientist must add a third, effective presentation and interpretation of truth to the learner.

Notes

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The Reporter

A class in educational psychology that spends most of its time observing children's behavior in real-life situations in the classroom and on the playground is being conducted at Arizona State Teachers College. The classroom periods are utilized as a clearinghouse and for informal discussion periods. The course is definitely a laboratory course in applied psychology, with life situations involving children as the laboratory. (1939)

Robert S. Newdick

Robert Frost and the American College

Asked to name the dean of America's living poets, doubtless every college executive in the country would answer promptly, "Robert Frost." Doubtless, too, if pressed, these executives would continue that the poet spent several years in residence at the University of Michigan and that he is now associated with Amherst College. Yet many of these educational helmsmen would be unprepared for the suggestion that Frost could counsel them sagely in matters academic.[1] And with little wonder, because Frost has written no autobiographical or descriptive account of his background and experience as a teacher, he has never formally proclaimed his philosophy as an educator, and he has not enlarged upon his particular methods and results.

The aim of this paper, then, is concisely to state the chief facts, succinctly to set forth his fundamental principles, and briefly to indicate his procedures and their consequences both in the classroom and out of it. The emphasis will, of course, be upon points of special interest or pertinence in the field of higher education.

Of old New England stock, William Prescott Frost, Jr., the poet's father, taught for some time in Lewiston, Pennsylvania. There he met and married another teacher, Isabelle Moody, daughter of a Scotch sea captain. When he died in San Francisco in 1885 his wife returned with her two children (Robert, the elder, was ten) to her husband's former home in Lawrence, Massachusetts, and for years thereafter supported her family by teaching in neighboring towns or in her own private school. Thus Frost was born of teachers and grew up in an atmosphere which was surcharged with the problems of teaching.

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In his early years in grammar school Frost was an extremely indifferent and careless student, preferring games and fun to studies. Then, abruptly, he decided to apply himself. In consequence he made up the deficiencies of a number of years in one year, entered Lawrence High School in 1889, took part in several activities, and in three years was graduated at the head of his class. There followed a few months at Dartmouth on a scholarship, and later he spent two years at Harvard; for leaving each school he had his private and sufficient reasons.

But he liked teaching: for his mother he finished out a difficult year in 1893; for all of one year and part of another he taught a little country school at Salem, New Hampshire; another year he taught English, Latin, and algebra in his mother's private school; one year, while he was in Harvard, he taught history in the evening high school at North Cambridge; and during the next he commuted regularly to Lawrence to meet an evening class and talk over the new books.

Beginning in 1905 he supplemented his income from farming near Derry, New Hampshire, by teaching parttime in Pinkerton Academy in the village; not long thereafter he assumed a full schedule (seven consecutive classes daily); and by 1911 he had so manifested his worth that he was offered the principalship. Instead, however, he accepted an offer to teach psychology in the New Hampshire State Normal School at Plymouth.

In the autumn of 1912 he went to England with his family, and there, as everyone knows, on the appearance of *A Boy's Will*, 1913, and, even more notably, on the publication of *North of Boston*, 1914, he was hailed as the distinguished artist he long had been. Shortly after his return to America in the spring of 1915 he was called to the Phi Beta Kappa exercises at Tufts, and in 1916 he read a poem at similar exercises at Harvard. Almost at once, too, institutions of higher learning began to honor themselves by conferring degrees on him.

Teaching, however, was still in his blood. In the autumn of 1916 he began the first of three years at Amherst, teaching classes in Shakespeare, American literature, modern poetry, and advanced composition. Then, after one year of freedom from all academic engagements and another of only informal teaching, he spent two years, 1921–23, as Fellow of Creative Arts at Michigan. Two more years, teaching a "course" in general reading at Amherst, brought his "formal" teaching to an end, for the year thereafter, 1926–27, he spent again at Michigan. Since 1927 he has been professor of English on the Simpson Foundation at Amherst, meeting no classes but occasionally talking or reading and regularly advising candidates for honors in English.

Frost's regular attendance at the Bread Loaf School of English since 1920, his numerous participations in literary round tables and writers' conferences in colleges and universities, such as those during the summer sessions of the University of Colorado, and his associate fellowship in Pierson College at Yale—these, too, should be taken into account.

In short, as the record makes abundantly clear, Frost has devoted to teaching some thirty of his present sixty years—to teaching a half-dozen subjects, to teaching in several different ways, to teaching in schools ranging from the plain white country schoolhouses of his truly native New England to the elaborate and anachronistic Gothic piles of proud American universities; and what he has said and done in his character as an educator has the authority of half a lifetime of considered experience and philosophical observation.

On the eve of his departure for Ann Arbor, Frost declared frankly, "I go primarily for my own work"; then he added, significantly, "but I wouldn't go if I wasn't interested in education." One may well mark Frost's choice of words, which is never careless: "I wouldn't go if I wasn't interested in *education*."

The materials for the educational process, namely, the students, Frost divides into two classes, the "free-born" and the "slaves." His concern is primarily for the free-born, though it has been remarked that he takes "particular interest" in "diffident" undergraduates.

"Most teachers," he observes, "want to be told what to think and what to do." The best are the few "who have marked wide horizons" on their own. Somewhere between the servile follower and the independent master, however, is the sort of teacher in whom trust can well be placed,

> in the sort of teacher who knows how to get more out of a student by surrounding him with an atmosphere of expectation than by putting the screws on him. The sort of teacher who will reverse the whole relationship between student and teacher as it has been, who will encourage the student to make his own trouble instead of waiting for his teacher to make it for him, who will turn the teacher's claim on the student into the student's claim on the teacher.

As to ways of teaching,

> there are and always have been three ways of teaching, namely, by formal contact in the classroom, by informal contact, socially as it were, and by virtually no contact at all.

Frost has taught under the forms of all three ways and has commented on each of them.

He has least use for formal classroom instruction, with its traditional apparatus of lectures, quizzes, examinations, and roll calls. Take lectures:

> I refuse to stand up and lecture a steady stream for fear of the consequences to my character. Three days in the week, thirty-five weeks in the year, is at least three times as much as I have it in me to lecture on any subject anyway. It is at least three times as often as I have the nerve to face the same audience in a week, and three times as often as I have the patience when I know the audience has been doing nothing to help itself in the intervals between my lectures.

As for quizzing,

> Long ago I gave up the idea of asking my students to tell me what I knew just that I might discover if they knew as much as I did. Now in class I ask questions in the correct sense of the word, for I want them to tell me something new, something I do not know.

And of course "something new" is never to be uncovered by examinations. As to roll-taking, "Half the time I don't know whether students are in my class or not." Why should the instructor set any store by records of attendance? "The professor knows his alert and sincere pupils and can mark them; the others may slide through."

Unalterably opposing formal instruction, Frost has consistently stressed, in both precept and practice, the merits of informal teaching. In all essential respects, therefore, his classes are opposite to conventional ones. Only interested students being present, the atmosphere is free from any sort of tenseness. Formal discourse being excluded, class activity is provoked by questions that are truly questions, sometimes, at the outset, questions that arouse controversy, debate, self-scrutiny; later, questions that lead to a communion of minds in nearly complete self-revelation. As Frost has summed it up:

> it is the essence of symposiums I'm after. Heaps of ideas and the subject-matter of books [are] purely incidental. Rooms full of students who want to talk and talk and talk and spill out ideas, to suggest things to me I never thought of. It is like the heaping up of all the children's hands, all the family's hands, on the parental knee in the game we used to play by the fireside.

Such teaching is possible merely in the classroom. Ideally, however, it should be supplemented by contact with the student in other atmospheres. The instructor's office, for instance, may well be utilized so. Frost, however, prefers the complete freedom of his home:

> I can stay with a student all night if I can get where he lives, among his realities. Courses should be a means of introduction, to give students a claim on me, so that they may come to me at any time, outside of class periods.

Frost's students press their claims even when the impelling force, regarded strictly, is off at a tangent. "Men have come to me with paintings because they felt my sympathy with anything they might do, even though it was intrinsically something I knew little about."

Obviously, there is no precise preparation that an instructor can make for teaching in this manner. Equally obviously, no formal examination could be set for a course taught so. Yet examination, of the most searching sort, goes on daily, and the instructor is at no real disadvantage in determining marks.

> We are all being marked by each other all the time, classified, ranked, put in our place, and I see no escape from that. I am no sentimentalist. You have got to mark, first of all, for accuracy, correctness. But if I am going to give a mark, that is the least part of my marking. The hard part is the part beyond that, the part where the adventure begins.

Generously, and yet with great wisdom, Frost takes his students at their best in matters involving "the adventure":

> How do I know whether a man has come close in reading Keats? It is hard for me to know. . . . One remark sometimes told me. One remark was their mark for the year; had to be—it was all I got that told me what I wanted to know. And that is enough, if it was the right remark, if it came close enough.

Just how successful, it may fairly be asked, is this informal teaching in practice? For it is perfectly true, as Frost himself has observed, that "you never can tell what you have said or done until you see it reflected in other people's minds." Let a former student answer, the one who anonymously welcomed Frost back to Amherst in 1926:

> Whatever the size of his class or the announced subject, it was conducted by whimsical methods freshly devised for the occasion and the doors were open for any interest that students might wish to bring in. The effect, not limited to the immediate circle of hearers, was the opposite of that attributed to the Grecian urn: it teased us into thought.

Perhaps of still greater interest to educational authorities, certainly a still greater challenge to conventional pedagogical methods, is yet another way that Frost has proposed and carried into execution to "tease students into thought." He employed it first at Michigan in 1921, and at Amherst has held to it steadily since 1926.

He calls it "education by presence," and it is carried on simply by the presence among college students of leading scholars, outstanding scientists, and distinguished artists. Such leaders may ostensibly conduct "courses," or they may simply be easily available for conversation or conference, as they may choose; in either case their presence will be stimulating.

Hear Frost himself:

> Students get most from professors who have marked wide horizons. If a teacher is evidently a power outside as well as inside the college, one of whom you can hear along other highways, then that teacher is of deep potential value to the students. If the student suddenly finds that the teacher he has perchance listened to with indifferent attention or not at all, is known all over the country for something not too bad, suddenly his communication takes on luster.

Frost believes that students will profit by such rich contacts, even if not intimate associations, because he himself profits so:

> I have always thought a man's chief strength came from being able to say (after St. Paul and Kipling), Of no mean city am I—of no mean college am I—speaking intellectually. . . . For my part I am helped by the thought of the artists who are my fellow citizens. It is encouraging to belong in the same circle with people who see life large.

In making that last observation Frost was not thinking exclusively of literary artists. The devices of the perfect education, he has said, are not one but three: "the research laboratory, studio apprenticeship, and the salon of good minds." To be specific as to the poet's disinterestedness: most instrumental in bringing to Amherst a celebrated painter whose studio was open to students, was Robert Frost.

Uppermost in Frost's mind in advocating "education by presence" is the desirable stimulation of imaginative and impressionable students. Also to be taken into account, however, especially in small colleges, is a similarly beneficial effect on responsive members of the faculty.

Frost has the courage of his convictions. He would not limit education by presence to carefully isolated ventures here and there. It might, he thinks, be the very foundation of a school:

> Every teacher should have his time arranged to permit freer informal contacts with students. Art, the various sciences, research, lend themselves to this treatment.
>
> You could perfectly well build an institution on informal contacts. I'd give every teacher who wanted it, who could be happy in it, who wouldn't despise it, a chance at this informal teaching. Some I'd give more, some I'd give less. Some I'd give—isn't there a phrase "Nothing else but"?

Frost agreed with his friend the late President Burton of Michigan that under such a plan students would be wholly free from formal examinations and yet would be obliged to demonstrate the quality of their academic work by a system of "publication":

> They could come and talk, they could express themselves in the publications on the Campus, or they could write elsewhere. It was full expression of themselves that he wanted to serve as an examination.

And, at least where the presence has been Frost's, this system of education by presence has produced satisfactory results. At Michigan, for instance, the authorities observed that when he "merely came to live in Ann Arbor . . . interest in poetry and the finer types of literary expression evinced an inspirational increase." *The Inlander* thrived, and *Whimsies* came into existence. A course of lectures by prominent American poets flourished. The sale of good books by the local bookstores increased phenomenally.

And at Amherst thoughtful undergraduate opinion found expression last May in an editorial in the student paper: "in spite of the fact that Professor Frost no longer teaches regular classes, he continues to make an essential contribution to the life of the College." Specifically, "his assistance to honors students in special pursuits is for them a vital intellectual stimulus. Such work is not spectacular nor generally recognized; but its effect is real and lasting."

Closer analysis of Frost's teaching, particularly of literature and composition, is of fascinating interest, but lies outside the scope of the present paper.[2] One point in it that may be singled out for mention, however, is that he teaches his students to read poetry as poetry, and not "as if it were something else than poetry, as if it were syntax, language, science." So he reads, and all who have heard him read, making occasional comments as he does so, must echo Mr. Cox's judgment that such reading enables both young and old "to recognize life in poetry and poetry in life."

To recognize life in poetry and poetry in life one needs to be a philosopher. Here Frost stands with other leaders among modern thinkers, for it has always been his central aim as an educator to help the student to determine his personal philosophy, his ultimate attitude toward life, for himself. As Frost puts it, with the salt of humor,

> The business of the teacher is, I presume, to challenge the student's purpose. "This is life, your career is ahead of you," he must say; "now what are you going to do about it?" I do not mean the challenge should be made in words. That, I should think, is nearly fruitless. It must soon begin to sound to the student like rote. Besides, a man can't, you know, be forever standing about on a campus crying out at the students, "What are you going to do about it?" No, what I mean is that his life must say that, his own work must say that.

Assuredly Frost's life and work say that. And were he to address himself to an audience of college executives he would insist that the lives and works of many other artists—who might well be absorbed into college faculties—say the same.

Notes

[1] For a chronological list of all materials published to date and a résumé of each entry, *see* the writer's "Robert Frost, Teacher and Educator: An Annotated Bibliography" in the JOURNAL for June.

[2] *See* the writer's article entitled "Robert Frost as Teacher of Literature and Composition" which is to appear in a forthcoming issue of the *English Journal.*

William R. Wilson

Students Rating Teachers

At the first meeting in the week of December 9, 1929, every undergraduate student in the University of Washington was asked to appraise each of his classes and each instructor on a rating blank containing thirty-five topics. During this appraisal, which required from twenty-five to forty minutes, the instructor withdrew from the room. When the ratings were completed, they were securely bound and delivered by a student to a faculty committee responsible for their tabulation and for putting them to the uses for which they were intended.

The members of the Educational Research Committee had been appointed by the President of the University on recommendation of its faculty.[1] They had been given instructions to carry on any studies that seemed to promise an increase in the educational effectiveness of the University. Among the projects undertaken by the committee was one to improve the quality of teaching in the University. The President in a letter to the faculty pointed out that, although no one familiar with college teaching could subscribe to the blanket indictments of its quality, there could exist no doubt that the general level of teaching effectiveness could be raised. The peculiar conditions under which the college teacher works deprive him of the stimulation and criticism that insure at least some increase of competence of other professional men. The surgeon, the engineer, and the lawyer do much of their work under conditions that inform them of the success or failure of their procedures. In contrast, the college teacher works almost entirely in the dark. So inured is he to this situation that he often fails to recognize the bad effects of the ineffective techniques that he develops. Evidence has been presented to show that high-school teachers improve little in teaching skill after their first five

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years of experience. The college teacher works under conditions even less conducive to improvement. These considerations led the Committee to cast about for means of giving the college teacher that detailed, objective criticism of his courses and methods that seems to be essential for increase in teaching effectiveness.

The Committee laid down certain criteria for the evaluation of the various methods that were proposed. It was decided that to be worthy of experimental trial any source of information must meet the nine conditions here enumerated. It must give a detailed and analytical appraisal of the course and the instructor. It must show the effects of the course upon the students for whom the course is given. Since comparative judgments are often more enlightening than absolute criticisms, it must enable an instructor to see his standing in the faculty group on each of the topics on which he is given information. It must hold out the possibility of securing reliable judgments. This involves at least the possibility of securing appraisals in such a form that reliability and validity can be studied objectively. It must make frequent appraisals of each characteristic possible in order that the results of attempts to improve may be discovered. The information must be in a form that can be readily used by the instructor who receives it. There must be a minimum of interference with the conduct of classes. There must be no infringement of academic freedom. The expense must be within reasonable limits.

These criteria were used in scrutinizing nine possible sources of information which can merely be listed here. They were:

1. Inferences on the quality of teaching from the amount and quality of scholarly publication
2. Visiting of classes by chairmen of departments or other critics
3. Inferences of teaching success from outside contacts
4. A study of examination questions
5. The use of standard tests
6. Inferences of effectiveness drawn from experience or training
7. The judgments of faculty associates
8. Reports of students in conferences
9. Students' judgments systematically gathered

None but the last of these methods seemed to offer any promise of meeting the criteria set by the Committee. It is possible to secure from college students detailed and analytical judgments of their courses and instructors. They can be used in making comparisons on each of the points appraised. While the reliability and validity of these judgments are not known, the information is at least in a form that makes their study possible. Sampling is perfect since every member of every class registers a judgment. The number of ratings is large, reducing whatever unreliability results from scanty sampling. The information is from the student's point of view. It can be collected as often as is desirable with a minimum of interference with classes, and requires no visiting of classes. The expense is small, approximately one-half cent for each rating on thirty-five items.

In making up the rating blank thirty-five topics were selected from a much longer list. The topics were designed to cover as many as possible of the significant characteristics of the course and the teaching methods of the instructor. The two samples show the general form of the questions.[2]

P. Does he encourage original thinking or note memorizing?
   1. Provides unusual stimulation and encouragement to original thinking.
   2. Stimulates the students to think for themselves and encourages them to do it.
   3. Provokes some original thinking, but does not stress it.
   4. Not much attention given to original thinking or encouragement of it.
   5. Does not welcome anything but memorizing of lectures or text.

R. What is your impression of the general effectiveness of the instructor? So far as possible leave out of account the subject-matter of the course and consider only the instructor.
   1. In general weak and ineffective.
   2. Somewhat less effective than the average teacher.
   3. About average in effectiveness.
   4. Considerably more effective than the average teacher.
   5. An unusually fine teacher. Approaches the ideal teacher.

   What are the outstanding merits or defects of the instructor?

The examples that follow will show the general nature of the questions that were asked. To what extent has this course been interesting to you? What is your opinion of the textbook or textbooks used in this course? What is your opinion of the quality of the material presented in the lectures? How do you think the instructor would compare with other men in his ability to make the course interesting? Did the instructor keep himself informed of students' progress? What amount of outside work was required in the course? Which of the following statements characterize the lecturers . . . ? If there were discussions or oral recitations in the class, which of the following statements in your opinion best characterize them . . . ? What is your feeling about the extent to which this course as compared with your other courses contributed to your education? If there was laboratory work in connection with the course, please check the appropriate statements . . . What use was made of the lecture hour?

The rating blank was given a preliminary trial in mimeographed form. The information secured in this trial was used in modifying the phrasing of the questions so that each of the alternatives would receive some answers and the typical course receive an average dose to the middlemost answer. When all university ratings were tabulated, it was found that the students in the preliminary group had rated their classes more severely than the larger group. This resulted in some skewness of the final distributions. Since the significance of the class averages was determined by their rank in the entire group, not by their absolute size, the skewness of the distributions is without significance.

As a first step in the tabulation of results, the number of students checking each answer to each topic was secured. The answers were then averaged. From a tabulation of the averages of all classes the centile standing of the average of each class was determined. In one class the answers on Topic R were distributed in the fashion shown [below].

R. What is your impression of the general effectiveness of the instructor?

	Number of Students Checking	Score Times Number Checking It
1. Weak and ineffective	0	0
2. Below average	3	6
3. About average	5	15
4. More effective than average	17	68
5. Unusually fine teacher	15	75
Total	40	164
Average judgment		4.1

The centile of this average in the distribution of 960 classes on Topic R is 75. On this topic the class average is larger than that of 75 per cent of classes in the University.

As has been mentioned, when the averages of the 960 classes were tabulated for each topic in a frequency table, they were found to be somewhat crowded toward the upper end of the distribution. The result was that the all-university average on a majority of the topics lay between 3.5 and 3.7 instead of at 3.0, as it would have if the typical class had been called average by the students. Since the vote on any topic is in part a result of the phrasing of the answers, the absolute size of the averages was of no particular significance. The rank given the class in each topic is of real importance.

The range of the class averages was great. In the topics with five possible answers, the highest possible average was 5.0, the lowest possible average was 1.0. In the case of nearly every topic, the range of class averages was from 1.1 or 1.2 to 5.0. This indicated that on some topics practically an entire class gave the most favorable or the least favorable possible rating.

The problem of the reliability of the class averages raises a number of neat problems. An answer can be given to the question, "To what extent will a man be given the same rating on each topic by a class composed of the same general kind of students and taught in approximately the same way?" Ninety-seven instructors had two sections of the same subject. Correlations between class averages in the two sections gave coefficients of correlation ranging between .65 and .88 on a dozen topics selected at random. These are not, of course, true reliability coefficients. No two classes are handled by the instructor in exactly the same manner. In spite of these facts, the instructor seems to make a fairly consistent impression upon his various classes.

The dispersion of the ratings of a class on each topic may be taken as a measure of reliability. On this theory, the sample distribution would be taken as indicating greater reliability than one in which the forty judgments were evenly distributed from the first answer to the fifth. This criterion of reliability is not valid. If the students were asked to estimate the instructor's height, the dispersion of their answers would be a valid measure of the reliability of their judgments. The students are not asked for an objective judgment of height, however, but for the effect upon them of the instructor and his methods. The effectiveness of instruction, the level of difficulty, and the clearness of the lectures are not constant for all members of the class. The lectures that may seem childishly simple to some members of a class may be hopelessly obscure to others. Some instructors seemed to affect a majority of their students in the same way. Other men on some topics had distinctly bi-modal distributions with more students checking the upper and lower extremes than checked the central positions. An investigation of such cases showed ordinarily that two quite different types of students were in the class and that the instructor had adapted his methods to one group. The dispersion of ratings in such cases simply mirrored an existing condition.

If the purposes for which the ratings were given are achieved, it will be impossible to discover reliability by securing a series of ratings extending over a number of years. The value of the project will be lost if men maintain their rank in successive ratings. In the case of the few men who secured ratings from their classes during the Spring Quarter, large improvement was usually found on those topics on which the men had made a systematic effort to correct unfavorable conditions brought to their attention by the December ratings.

On the validity of the students' judgments two distinct questions must be carefully separated. One question is, "What is the opinion of the class on this aspect of my course?" The other is, "To what extent do the opinions of the students on this aspect of the course correspond to that of a perfect judge?"

The first question raises no problem of validity. It does ask for information of the utmost importance both to the teacher and to the administrator. It is important because knowledge of the reactions aroused in students by a course or instructor is essential to entirely successful teaching. To be fully effective a teacher must be fully informed of the responses of his class. Good teaching requires a continuous adjustment to a changing class. It requires, among many other things, ability to create and hold interest, to gauge the understanding of students and adjust the level of material to them, to use clear illustration, to maintain a good balance between lecture and discussion, to make one's self heard. Only by accident will the teaching of a man ignorant of the reactions of his class be effective.

The ratings may possibly have their greatest value taken purely as an accumulation of opinion without raising any question of how valid that opinion may be. The views of the students may be prejudiced, mistaken, superficial, immature, but, whatever their validity, they exist and exert a powerful influence on the effectiveness of the course.

In general, the questions of the rating blank have been framed to ask for the opinions or impressions of the student, rather than for an objective appraisal. The student is asked, for example, not how interesting the course was, but personally and specifically, "To what extent has this course been interesting to you ?" When the form of the question is considered, the irrelevance of the validity question is obvious. No other person knows how interesting the course was to him. If all the members of a class say that the course was interesting to them, it would be absurd to ask, "But was the course really interesting? Might not the course actually have been dull, and the students have been mistaken in thinking that it was interesting?"

Another point touching the problem of validity should be considered. Relatively immature and unenlightened judgment may be entirely worthless for discriminating fine points of difference and at the same time be quite capable of valid discriminations where differences are large. The expert coffee taster who can from the aroma distinguish any one of fifty brands is the only person who can make valid discriminations between samples which are identical to the average olfactory analyzers. Even the layman, however, can distinguish between a rich mocha and coffee made from yesterday's grounds. But, does the analogy hold? No one would think of leaving the selection of a textbook to a jury of elementary students. What, then, is the justification for including in the rating blank such a question as, "What is your opinion of the textbook or textbooks used in this course?"

Justification is found in the students' answers to the question. Each of the following comments was made in substance by a considerable number of students in each of several classes. They should be read with this question in mind: Has the topic elicited any valid information? "We were told to buy the text, but it was never referred to again." "The text is terrible, a complete waste of time." "Contains a mass of small useless facts which you are expected to read, but are never referred to in class or examinations." "All reading in the library, two books for forty students." "Unnecessary to read text as all of the material was given in lectures." "Text of high-school caliber." On the face of it, these criticisms seem to uncover the sort of gross misuse of readings that students may be expected to recognize. The enormous range between the best practice and the worst on each topic of the rating blank may lend a considerable validity to even the relatively immature judgment of the student.

The problem of validity may be considered from another angle. If the appraisal that would be made by a person of maturity and experience attending the class is taken as the standard of validity, what relation would it bear to these student judgments? It would unquestionably be a splendid thing if mature and experienced persons could be induced to visit classes and appraise and criticize them. The judgment of an outsider, however, is at best a second-hand impression of the effectiveness of a course. Presumably the mature visitor would appraise the course by better standards than students possess. They would not, however, reveal the effect of the course upon the students who take it. If the students report that the course is interesting and the visitor reports that it is dull, the only conclusion that can be drawn is that the course is interesting to the students and dull to the mature visitor. If either set of appraisals is taken as a criterion, the other set is invalid. A distinguished scholar, dissatisfied with the ratings that he received from a large beginning class, complained that he was casting pearls before swine. The mature visitor doubtless would have agreed. But does the wise swineherd continue to lavish pearls upon his charges after he has found that the diet cannot be assimilated?

Each instructor was given the average of each of his classes on each topic of the rating blank. He was also supplied with a table giving the centile standing of each average so that he could compare himself with the all-university distribution. After each topic on the rating blank was a space for remarks, and at the end of the blank answers were requested to two questions, "What were the outstanding merits of this course?" and "What were the outstanding defects of this course?" Each instructor was given from two to twenty-five typed pages of these comments so that he had all the information contained in the original blanks.

The use that was made of this information varied with the personality of the instructor, the nature of the criticism, and the interest of the instructor in the quality of his teaching. The committee made it possible for any teacher who wished to discuss his ratings with a member of the faculty designated for that purpose. Some sixty instructors made use of this opportunity.

Few instructors received returns that contained no information that could be used to improve teaching or courses. The more systematic teachers listed each of the comments of their students under the heading of the topic that elicited it. When these comments were studied with the class averages, the reasons for the outstanding characteristics imputed by the students stood out fairly clearly. In such cases, it was not difficult to work out a program for improvement.

The improvements brought about in courses often did not result from making an obvious change. It was frequently found best to correct a weakness in a roundabout manner. An obvious example was found in one large class in which a considerable number of students reported that they were unable to hear the lecturer. The obvious remedy was to talk louder. From the comments on other topics, however, it was apparent that the inability to hear was a result, not of too feeble a voice, but of a general restlessness and confusion in the class. The remedy was to take measures to secure an attentive and quiet class. Teaching is a complex composed of many activities that enter into the most complex relations with each other. Occasionally, it was found that one defect, unrealized by the instructor and easily remedied when brought to his attention, resulted in a generally decreased effectiveness. A study is now in progress attempting to unravel some of the interrelated activities that constitute teaching.

The most satisfactory test of the value of this project as an aid to teaching would be to discover through its repetition the extent to which students' impressions have been changed. Some slender evidence already exists. In June, 1930, the students of twelve classes were asked by their instructors to give ratings on blanks similar to those used in December. None of the students had previously rated these instructors. On those topics on which the instructors had made a thoughtful and systematic effort to improve, the June averages were about twenty-five centile points higher than in December.

Certain outcomes of the project are already quite apparent, although at this time no statistical appraisal can be made. For the first time in the history of higher education, every member of a college faculty has been given an appraisal of his methods and courses from the students' points of view. Through the class averages and centiles, he has secured appraisals relative to those of his colleagues. He has secured immediate information from the written comments and criticisms. A considerable number of the instructors secured information that, they felt, justified a drastic reorganization of their courses. Few received information that they were not able to use to the betterment of their work.

A number of administrative uses of the ratings have been suggested. The sole purpose of the project, however, was to give the individual instructor information that might be of value to him in increasing the effectiveness of his work. It seems unwise to endanger this purpose by any action that would seem to impute to the appraisals a validity that they cannot be shown to possess. At the present time, the information collected has its greatest value when it is studied by the instructor concerned for the sake of extracting from it all possible help. Although the averages of individuals remain anonymous, many generalizations of interest to administrators can be made. There seems to be no significant difference between the ratings given men and women instructors. If there is any difference in the teaching effectiveness of the various academic ranks, students are unable to discriminate it. Large classes seem to be somewhat less satisfactory to the students than classes of less than forty. Only about thirty per cent of classes report as much outside study as the university assumes is necessary for the average student. The evil of bundling students who differ greatly in preparation and interest into the same class has been sharply brought out. There is reason to believe that the ratings will eventually show that not all men are equally qualified to teach all types of courses.

The Committee members wish to emphasize that any evaluation of the project made at this time is based upon incomplete evidence and must for that reason be tentative. They believe that by laying before those interested in problems of higher education a statement of the reasons for undertaking the project, the methods of handling the data, and the uses to which the information is being placed, it will not only answer many questions that have been asked, but will also correct certain mistaken beliefs that seem to be widely held. Any experiment in higher education inevitably smacks of radicalism. The committee made responsible by the faculty and administration for this project is unworried by this charge. It believes that the effectiveness of college teaching cannot suffer from the cautious search for sources of information, from a rigorous appraisal of whatever this search turns up, and from its judicious use by the college teacher.

Notes

[1] The Educational Research Committee of 1929–1930 consisted of Herman V. Tartar, *chairman*, and H. B. Densmore, Garland Ethel, Walter Isaacs, H. H. Preston, C. E. Quainton, E. R. Wilcox, and W. R. Wilson.

[2] The form of the blank was modeled after one devised by Mr. A. Lee Henderson of the Ohio State University.

The Reporter

Students at Syracuse University are agitating for the establishment of a practice which they have called Block Week. It is proposed that the last week of each term be so designated, and that during these periods no written examinations or papers of any sort be required of the students. (1936)

JE Charles A. Beard

The Quest for Academic Power

A music-hall wit who has taken London by storm recently tore his audience wide open by saying in true English drawl: "Darwin has told us where we came from, Conan Doyle has told us where we are going, and if Stanley Baldwin will tell us where we are, I'll buy him a new top hat." In the kingdom of higher education we have no Darwins or Conan Doyles, and it is doubtful whether there are any Baldwins among us to win shiny plugs. Yet it is certainly appropriate that someone should have recourse to first principles, take our bearings as accurately as possible, and provide us with a sailing chart containing at least general directions and notations of dangerous reefs. The task is difficult, no doubt, and the educator who rushes in where angels fear to tread will probably run the risk of amusing his colleagues who sit snugly ensconced in their specialist corners. It is easier to ascertain the price of cotton in Alabama from 1850 to 1852 or to measure the length of frogs' legs in Ireland than to find out what education is and might be; but, despite our desire to escape the problem, the issue presses itself upon us with increasing insistence. It is fortunate that the American Association of University Professors now has the courage to tackle it.

From Aristotle to Henry Adams the world's great and independent thinkers have found in the universe about us evidence of plan and evidences of chance or chaos—at least as far as the human eye can see. And in illuminating particular segments of this life of law and chance they have employed the lamp of experience. The method applies to the question before us. In getting our bearings we may first have recourse to some pages of history which help to explain the situation in which we now find ourselves.

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There was a time in Western civilization when the term "university" had a rather definite connotation. A university was a place where young men learned a little Greek, Latin, mathematics, and New Testament literature and prepared for the profession of law, medicine, or religion. It never was just so simple, of course, but somewhere near this center lay the substance of the university. In such institutions all tutors taught all the subjects. They thus had a common background for thinking; they were united by common intellectual bonds; and their problems of living and working together, apart from squabbles over preferment, were relatively easy of solution. Moreover, they were in the early days united by a common faith. They were not beset by skepticism or torn between a variety of sects each affirming its own truth; they were seldom harassed by economic doubts, honest or dishonest. And to make the going smooth they governed themselves without the aid of trustees, deans, assistant deans, provosts, presidents, doormen, and bell hops.

Upon this idyllic scene the modern age burst with shivering blasts. With a devastating sweep came natural science. It upset much that had been accepted as fixed beyond question. It did more. It introduced the method of microscopic research. With amazing rapidity, natural history, which was once taught in its majestic range by retired clergymen, was broken up into innumerable specialties—botany, biology, zoology, chemistry, physics, anthropology, and so on. Of necessity, the scientist, with truth about particular matters as his goal, sought to explore deeper and deeper the utmost ramifications of his subject. Only in that way could he find new truth, add to the sum of knowledge, win fame, secure promotion, and establish himself securely in his profession.

Just as the scientists began to tear the old learning apart, the professions began to multiply with the growing complexity of our mechanized economic order. New opportunities opened before students in colleges, and nothing was more natural than the demand that their education should bear some relation to career. It always had. Greek and Latin had been indispensable to lawyers and clergymen. So the old four-year unitary classical course was whittled away, and new bits of stucco were added to the ancient ruin as supposed supports for the professional disciplines.

Meanwhile, with the extension of human knowledge, new specialties broke down the simple humanities of the classical tradition. History, economics, politics, literature, philosophy, psychology, and all the other items appeared in the curriculum. As each was established, it began to split. Obviously, history was too vast for any human mind; so it was divided into periods. One professor concentrated on Pericles, another on

Louis XI, and a third on President Harding. Besides horizontal splits there were perpendicular cleavages as different varieties of interpretation intruded themselves. There might be an economic interpretation of Caesar and an application of the Freudian method to his achievements.

To make a long story short, the university ceased to be a place where a few scholars, all trained in the same way, taught substantially the same subjects, to pupils united by common bonds of discipline. It became the home of hundreds of specialists and thousands of students also specializing, at least by the sophomore or junior year. Some were working feverishly on invertebrates in Tahiti and others on the arts of the beauty shoppe. The only universal intellectual interest was football. Neither professors nor students spoke a common language, save of a low denominator. They revolved around no general center of intellectual and moral gravity.

As the chaos spread the government of the university changed. For government by the fellowship of scholars was substituted government by a board of trustees and a president. The trustees were united by no common bond of identical intellectual discipline. They gave little or no attention to the educational side of management (for which the institution was supposed to exist), except when there was trouble, when some professor said or did something out of the ordinary which shocked friends, founders, and benefactors. The president acted as a kind of buffer. He was seldom a dictator, for, whatever his personal desires, he usually found himself hemmed in on all sides by the pressures of special interests in the faculties and the board of trustees. Thus it happened that chaos presided over chaos. The powers of order were brought to bear only when there was some unusual disturbance—when a professor expressed doubts about the intellectual advantages of military training or the beneficence of British rule in India. In such circumstances the professor, who had once taken part in self-government, became a kind of hired man to be fired without notice by his employers—the president and trustees—if he said anything extraordinary, either wise or foolish. Safety, then, lay in a still more extreme specialization or in using the patois of the lowest common denominator in the community. For the seeker after truth to discover anything not known to the village clergyman or the man in the street became perilous.

Under this system great things were done. Our knowledge of the material world was enormously increased. Our knowledge of the humanities was widened and deepened. Huge sums of money were collected for the increase and diffusion of learning. Magnificent buildings were erected. Libraries and laboratories were multiplied. The facilities offered to students were enriched beyond dreams of avarice. As the center of gravity split into a million fragments, the appearances of masonic solidity took on the mien of eternity. In the golden glow of the Indian summer which marked the passing Victorian age we were all happy children of light. The few skeptics who suggested that world-shaking changes might come were regarded as disturbers of a perfect disorder of things.

Then the Great War exploded. A number of professors who were unable to take the official thesis at face value were rudely dismissed without a hearing and sent into outer darkness. A few fled from academic halls to seek peace in sylvan retreats. In time inquiry was made into the status of the teacher. The Association of University Professors was developed—a professional organization. As seemed appropriate in an industrial society endlessly torn by labor disputes over the distribution of wealth, the field of education became the scene of contests waged in worldly language and with worldly implements. The university president and trustees represented one set of vested interests and the professors another. To define and preserve and advance their respective interests became a matter of primary concern. For the peace and healing of learning was substituted the technology of conflict. This, too, was inevitable and not without its uses.

There seemed to be no way to resolve the antithesis. If the corporate financiers and managers were right, then it was the business of the professor to stick to his last and obey orders or take his walking papers without any question. If the professors were right, if the university existed for scholarship and the advancement of learning, as announced on various ceremonial occasions, then surely the scholars and teachers immersed in learning ought to form the governing fellowship and to act as judges whenever one of their number transgressed the bounds of propriety. "What," said the providers of money, "do you mean to say that we ought to pay a fellow for teaching things that we do not like?" "What," replied the professor, "do you mean to say that I, as a biologist in your institution, must make everything square with the Miltonic account of creation?"

A part of the trouble rose, of course, from the fact that in America little or no distinction has ever been made between teaching and the pursuit of learning, as Abraham Flexner has demonstrated with amazing illustrations. Fond parents want their boys and girls brought up in a fashion that will fit them neatly into the little social niche in which they are to live, move, make money, and have their being. There is nothing strange about that. But professors who study all systems of philosophy or religion or economics or politics or psychology find it extremely difficult to cramp their discoveries into any parochial range. They cannot, in fact, if they are true to their vows and the business in hand. The original sin was committed, perhaps, when the university, in the German sense of the term, was placed in the midst of the college, and undergraduates from the provinces of life were brought into contact with a burning passion for universal knowledge. However that may be, we cannot retrace our steps.

It is highly desirable, to be sure, that this country should have at least one real university absolutely divorced from all undergraduate teaching and all professional interests, where the full responsibility for the advancement of learning would rest squarely upon the professors themselves. Such an experiment would be an important adventure in the realm of the spirit. It might disclose, for example, the astounding fact that the way to the highest practicality leads not through the jungle of the immediately practical. But America is not likely to have a genuine university. We are a hustling people, highly impatient with the immeasurable and imponderable. We want our coupons paid on the day written in the bond (although, as things are now managed by practical men, many defaults occur), and we want our dividends quarterly. Since this is so, work must be done with things as they are; the antithesis between management and learning must be softened by other methods.

Something significant would doubtless happen if those on the opposite sides of the barbed-wire entanglement would ask themselves, sincerely, honestly, and under the eye of eternity: "What, after all, is the supreme duty of intelligence and the ultimate function of the university in the universe?" It would be interesting to catch a few university presidents off guard, a few deans disengaged from registration cards, and a few professors not busy with splitting hairs already split a thousand times, and to hurl this elenchus into their midst. Some would laugh, no doubt, others would suddenly remember that they had a luncheon engagement, still others would think it "academic." But until it is asked with the kind of insistence which an Eliot or a Gilman could employ, it is not probable that anything really significant will take place in the American world of higher learning. Certainly, nothing significant will result from borrowing old clothes from Oxford colleges or importing methodology from Berlin.

From this point of view it is an encouraging sign that the members of the American Association of University Professors are cross-examining themselves. If they do it thoroughly they may bring about a renaissance in learning in the United States. It is quite proper that they should stand together on matters of academic tenure and security, that they should protect one another against hasty and despotic action on the part of minorities on boards of trustees who stampede majorities and presidents into ill-advised decisions. It is quite proper that they should devise rules of procedure and principles for governing cases of inquiry and dismissal. It is quite proper that they should forever hold over the heads of administrators the sword of thorough investigation. Decency requires this.

They will grow into real power, however, when they come to think of themselves not primarily as teachers with jobs to hold but as guardians of the lamp of learning, when they, through their fellowship, draw together the broken and dissevered fragments of their several specialties, and arrive at some fundamental conclusions respecting the duty of intelligence and the function of the university. It is not by quarreling with presidents and trustees that they will arrive at authority. It is by making again a unity of spirit and purpose in higher learning. If, as possessors of minute specialized knowledge, they are unable to reach any consensus of opinion respecting the things of the mind that ought to form the center of education and respecting the methods of imparting this truth to youth, then they will be governed by the possessors of material and legal power. If, on the other hand, they can, by much counsel and searching of hearts, produce a working unity, imperfect, of course, because human, they will enter upon their heritage by *becoming* the university. Here as elsewhere those govern who can.

When the members of the Association begin to think long and hard about this issue they will find themselves face to face with fundamental problems in philosophy: the nature of intelligence and the relations of man to the world in which he finds himself. No science, however indispensable it may be to the process, can furnish the clue. No arrangement of data, however well isolated and observed, can supply the laws of guidance. Science is neutral with respect to the choices of the human race. When it ceases to be neutral, it ceases to be science and becomes something else. Science can serve purposes. Thought, will, desire, dreams, and hopes must discover and affirm them.

To be effective, however, purposes must coincide with realities and potentialities actually before us. Otherwise they are utopian. They must be related to the inherent and intrinsic nature of the vast complex of things—the complex of which the several specialties represented by the departments of universities are branches or divisions arbitrarily carved out and separated from the living whole. In part, then, the problem is one of drawing together again the various dissevered fragments of learning. Walter Pater states the case:

> The various forms of intellectual activity which together make up the culture

> of an age move for the most part from different starting points and move by unconnected roads. . . . There come, however, from time to time, eras of more favorable conditions, in which the thoughts of men draw nearer together than is their wont and the many interests of the intellectual world combine in one type of culture. . . . Here artists and philosophers and those whom the world has elevated and made keen do not live in isolation but breathe a common air and catch light and heat from each other's thought. There is a spirit of general elevation and enlightenment in which all alike communicate.

There seems to be no other way. If this is so, the renaissance in American universities must come, if at all, from an informal and disinterested association of those who lead in the various departments. No trustees can make it. No president can bring it to pass. The artificialities of faculty meetings are among the world's worst futilities. The rebirth cannot be forced in a hothouse, it must grow slowly and naturally out of the fusion of many flames into a larger illumination. The Association of University Professors, combining all specialties and all interests, forms the appropriate circle for drawing together those whom man should never have sundered.

The Reporter

The American Association of University Professors has placed the University of Pittsburgh on its ineligible list because of alleged "insecurity of academic tenure." The action of the Association was based on an investigation of the discharge of Mr. Ralph D. Turner, a professor with liberal sympathies. (1936)

Walter Crosby Eells
Austin Carl Cleveland

Faculty Inbreeding

Faculty inbreeding, that is, the practice of selecting former students of an institution as members of its faculty, has long been considered one of the fundamental problems of college and university organization in America. It was discussed and its dangers pointed out by the late President Eliot, of Harvard University, over a quarter of a century ago in his treatise *University Administration.*[1] Strange to say, however, in the many objective studies of college and university administration which have been made since the appearance of that volume, little specific information has been presented concerning the actual extent and trends of faculty inbreeding on a national scale.

An examination of 230 published reports of surveys of higher education, for example, reveals less than a dozen which give any consideration to the matter, and in some of these the treatment is only incidental. Six refer to the situation in only a single institution, (2, 3, 4, 5, 7, 10) one reports the situation in two institutions in one state (6), one refers to four institutions in another (4), while only one covers a group of institutions in various states (8), and it is limited to an analysis of certain phases of the matter in a single class of institutions, the land-grant colleges.

The problem is of special importance to educational administrators who have the responsibility for the selection and organization of faculties as well as to students who are choosing an institution in which to continue their education. There is need, therefore, for an intensive study of academic inbreeding as found today in a wide variety of American institutions of higher learning, in order to discover norms of existing practice as a basis for the possible establishment of desirable standards and for an evaluation of trends that may be discovered.

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The present study is based upon a detailed analysis of all the institutions of higher education on the accredited list of the American Council on Education whose catalogues were available in the library of Stanford University in 1932 and which contained the necessary academic biographies of faculty members. A total of 219 such institutions of higher learning of every type, both publicly and privately controlled, were found, located in 42 states. The nature and extent of inbreeding found among almost seventeen thousand faculty members of the rank of instructor, assistant professor, associate professor, and professor in these institutions are summarized in this article.

Various definitions of "inbreeding" have been used, making comparable studies difficult. In the most extensive study previously made, that of inbreeding in the land-grant colleges, faculty members were classified as inbred who had received all or any part of their training in the institution in which they are teaching. A similar basis was used in the Oregon survey. In the Indiana, University of Chicago, and University of Pennsylvania surveys the criterion was the highest degree secured; in the Georgia survey four different patterns were defined. In the present study source of degrees secured is taken as the criterion of inbreeding since this is specific information which can be most reliably obtained from college catalogues. An individual is considered inbred who is a teaching member of the faculty and who has received one or more of his earned degrees from the institution in which he is giving instruction.

The extent of inbreeding in various groups of colleges and for different classifications of faculty members will first be considered, then the different patterns of inbreeding, and finally, trends during the present century.

Of the total group of 16,837 faculty members, 5,707, or 34 per cent, were found to be inbred as already defined. A remarkable range is found, from six institutions in which no inbreeding whatever was found—Albany College (Oregon), Arizona State Teachers College, Catawba College (North Carolina), Pacific University (Oregon), Sul Ross State Teachers College (Texas), and Texas College of Art and Industries—to 7 with over 60 per cent of inbreeding. The latter group is composed of the following institutions:

	Percentage of Inbreeding
Erskine College (South Carolina)	72
University of Notre Dame	70
Wake Forest College (North Carolina)	68
Davidson College (North Carolina)	68
Mississippi College	67
Roanoke College (Virginia)	65
Mississippi Agricultural and Mechanical College	61

The two service schools, the United States Military and Naval Academies at West Point and Annapolis, are not included in the analysis. The former has a percentage of inbreeding of 97, the latter 73 per cent. Visiting committees at the Naval Academy have repeatedly commented upon the large proportion of inbreeding and have recommended a larger proportion of civilian instructors. It is interesting to observe that Erskine and Notre Dame have practically as much inbreeding as the Naval Academy.

The percentages of inbreeding among other institutions range from 1 per cent to 59 per cent as follows:

Percentage Range	Number of Institutions
1–9	31
10–19	48
20–29	51
30–39	37
40–49	28
50–59	11

The median percentage for the entire group is 24.8 per cent. With one exception, all of the seven colleges with the highest amounts of inbreeding are found in the South. Only one of them was strong enough in graduate study to award the Ph.D. degree in 1929–30.

Although one-third (34 per cent) of the faculty members in the institutions under consideration were inbred, this condition is more likely to be found in the larger institutions with strong graduate schools which confer the Doctor's degree, as shown in a later section. Consequently the institutional median of 24.8 per cent is considerably lower than the average figure for all individuals.

In less than half of the institutions in 1932 did the amount of inbreeding exceed 25 per cent. In 18 cases, 8 per cent, however, it exceeded 50 per cent. No fixed standards for undesirable limits of inbreeding are known, and doubtless it varies under different conditions, but it is of considerable significance to know that the institutional norm (median) actually found in over 200 colleges and universities of all types is approximately 25 per cent. Certainly in cases where the inbreeding is found to exceed twice this percentage the administrators should give careful consideration to the matter and probably endeavor gradually to reduce such high percentages as faculty replacements or additions are made.

The percentage of inbreeding declines steadily from East to West and South, due in part, perhaps, to the earlier establishment and longer period of growth of the eastern institutions. In the East, with 22 colleges considered, the percentage of inbreeding was 38; in the Middle West, with 109 institutions, 35; in the Mountain states, with 15 institutions, 32;

in the South, with 59 institutions, 31; and on the Pacific Coast, with 14 institutions, 29.

Significant but not markedly greater inbreeding is found in institutions under private control than in those publicly controlled, the difference being seven times its probable error. For 8,966 faculty members in 151 privately controlled institutions, the inbreeding was 36 per cent; for 7,871 faculty members in 68 publicly controlled institutions, it was 32 per cent.

Inbreeding in institutions grouped according to denominational control or affiliation shows marked differences varying from almost 50 per cent for the faculties of Catholic institutions to less than 25 per cent for those under Presbyterian auspices. The percentages of inbreeding for the denominations having five or more institutions each was as follows:

	Percentage of Inbreeding
Catholic	49
Disciples	42
Lutheran	36
Methodist	34
Baptist	33
Friends	29
Congregational	26
Presbyterian	23

Another aspect of inbreeding, not here considered, is worthy of further study—denominational inbreeding as differentiated from institutional inbreeding. For example, of the faculties of the Catholic institutions, 49 per cent hold one or more degrees from the employing institutions. It would be significant to know what percentage of the remaining faculty members hold degrees from other Catholic institutions; and similarly for other institutions under denominational control or affiliation. It is probable that denominational inbreeding is less pronounced than it was a few decades ago, with the general decline of strictly denominational emphasis in education, but no data are available on this subject.

The institutions for men only show two and a half times as much inbreeding as those for women, the coeducational group occupying an intermediate position. For 801 faculty members in 19 institutions for men the percentage of inbreeding was 41 per cent; for 14,590 faculty members in 171 coeducational institutions it was 35 per cent; while among 1,446 faculty members in 29 colleges for women it was only 17 per cent.

It is to be expected that the larger institutions, in many cases with strong graduate departments, will have a larger proportion of their own graduates on their faculties than the smaller institutions many of which confer only the Bachelor's degree. For 12,172 faculty members in 81 large institutions having one thousand students and over, inbreeding was 39 per cent; for 2,864 faculty members in 67 medium-sized colleges—colleges with enrollments from five hundred to one thousand—it was 21 per cent. For 1,801 faculty members in 71 small colleges with enrollments of less than five hundred, it was 23 per cent. Inbreeding is almost twice as great in the large institutions as in the small ones, but there is no significant difference between the small institutions and those of medium size, although it is slightly greater in the small institutions.

Probably size in itself, however, is not so important a factor as the presence in the larger institutions of strong graduate schools which are coming to be considered more and more, in practice if not in theory, as training schools for college and university instructors. Accordingly, a classification has been made of institutions granting Doctors' degrees, or no such degrees, in 1929–30. For the 4,311 faculty members in the institutions conferring more than 15 Ph.D. degrees the percentage of inbreeding was 47 per cent; for the 1,260 faculty members in the institutions conferring from 1 to 15 Ph.D. degrees each, it was 36 per cent; and for the 11,266 in institutions conferring no such degrees it was 29 per cent.

The names of the institutions conferring Doctors' degrees in 1929–30, with number of such degrees and percentage of inbreeding follow:

	Number of Degrees	Percentage of Inbreeding
More than 15 Doctors' Degrees—		
Chicago	186	59
Ohio State	68	49
Columbia	184	49
Stanford	41	46
Iowa	53	42
Indiana	19	40
Pittsburgh	22	40
North Carolina	27	40
California Institute of Technology	18	21
Less than 15 Doctors' Degrees—		
Notre Dame	4	70
Purdue	4	70
Missouri	14	42
Oregon	2	28
Bryn Mawr	4	25
Clark	12	20
Rice Institute	3	17
American University	7	7

The increase of inbreeding with the increase in size and strength of the graduate school, as measured by number of Doctors' degrees conferred is marked, especially if the abnormal case of Notre Dame be omitted.

The rank-order correlation coefficient between number of Doctors' degrees and percentage of inbreeding for the institutions conferring such degrees is 0.62 ± 0.10; or if Notre Dame be omitted, it is 0.84 ± 0.05.

The distinct tendency for faculty inbreeding to increase with the size of the institution and with the strength of its graduate school suggests the question of variation with date of founding. When the institutions are grouped on the basis of size and date of rounding, in twenty-year intervals, a distinct tendency is revealed for the amount of inbreeding to increase with the age of the institutions, whether they be large, medium sized, or small. In the large institutions, the percentage of inbreeding for those founded prior to 1800 was 51, while for those founded since 1910 it was 16. For the medium-sized institutions variations are found from 35 per cent for institutions founded before 1850 as compared with 11 per cent for those founded since 1910. For the smaller institutions corresponding figures are 23 per cent and 8 per cent.

Percentage of inbreeding tends to decrease markedly with increase in academic rank, 4,671 instructors showing 45 per cent; 3,603 assistant professors, 37 per cent; 2,472 associate professors, 33 per cent; and 6,091 professors, only 25 per cent. For the faculties of the publicly controlled institutions the difference is even greater, varying from 46 per cent for instructors to 20 per cent for full professors.

Various factors may account for this marked tendency. Graduates may be inclined to seek appointments in their own institutions as instructors until they secure permanent appointments elsewhere. In some cases they hold instructorships while still working for the doctorate. Institutions also are inclined to utilize their own graduates in the lower academic ranks, in some cases, as a measure of economy.

For the two lower academic ranks the publicly supported institutions show significantly larger percentages of inbreeding than the privately supported ones, but the reverse is true for the two higher ranks of professor and associate professor. The privately controlled institutions seem to have a somewhat greater holding power and a smaller amount of faculty turnover than those under public control.

A final question of interest is the variation in inbreeding in different fields of study. Particularly in the larger institutions, the deans of the constituent schools or the heads of departments have the largest degree of control over the recommendation and appointment of new members of the staff. The amount of inbreeding is almost twice as great in the biological sciences as in home economics. It is markedly greater in chemistry and the biological sciences than in the physical sciences. It is greater in education than in the general social-science field; in modern languages than in ancient languages.

The percentages of inbreeding found for instructors in the various fields are as follows:

	Percentage of Inbreeding
Biological science	40
Chemistry	37
Education	34
Physical education	34
Modern languages	33
Mathematics	33
English	32
History	31
Ancient languages	28
Physical sciences	28
Social sciences	27
Home economics	22

Up to the present point, inbreeding has been considered as a single characteristic. As a matter of fact, however, there are many different types of inbreeding. The instructor who has taken his Bachelor's degree in the institution employing him, but his Master's and Doctor's degrees elsewhere represents a much milder and less objectionable type of inbreeding, than the instructor who has taken all three degrees in the institution employing him. A pattern of inbreeding which includes two or three degrees from the employing institution, particularly if they include the highest degree taken, is much more significant than a pattern which includes one degree only from the employing institution. No less than 19 distinct patterns of inbreeding are found among the 3,903 faculty members for whom this determination was possible. The difference between 3,903 and 5,707 individuals reported earlier as inbred represents for the most part men with professional degrees in law, medicine, engineering, and theology, which could not be classified satisfactorily as equivalent to the better standardized degrees of Bachelor's, Master's, and Doctor's. The different patterns of these three degrees are summarized in Table I. When inbreeding is present the term, inbreeding, follows the degree or degrees received at the institution in which the individual is now teaching.

In 61 per cent of the cases of inbreeding just summarized the highest degree achieved was secured from the employing institution; that is, the Bachelor's, 28 per cent; Master's, 27 per cent; Doctor's, 16 per cent. In over half of the cases (53 per cent) all of the degrees secured were earned at the employing institution: one degree, 29 per cent; two degrees, 20 per cent; three degrees, 4 per cent. This doubtless represents the most unsatisfactory form of inbreeding, that in which the instructor has secured no degree from any other institution, and in most cases probably has not even attended any other institution above the high-school

TABLE I

Prevalence of Various Patterns of Inbreeding According to Degrees Received

Patterns of Inbreeding	Total (3,903)	Public (1,819)	Private (2,084)
(1)	(2)	(3)	(4)
Bachelor's inbreeding—no higher degree	28.3	32.0	25.0
Bachelor's inbreeding—Master's inbreeding—no higher degree	18.5	21.9	15.6
Bachelor's inbreeding—Master's—no higher degree	17.3	16.2	18.3
Bachelor's—Master's inbreeding—no higher degree	7.7	9.9	5.8
Bachelor's inbreeding—Master's—Doctor's	5.1	4.7	5.5
Bachelor's—Master's inbreeding—Doctor's inbreeding	4.1	2.4	5.6
Bachelor's inbreeding—Master's inbreeding—Doctor's inbreeding	3.8	3.2	4.4
Bachelor's—Master's—Doctor's inbreeding	3.7	1.8	5.3
Bachelor's inbreeding—Master's inbreeding—Doctor's	3.5	4.3	2.8
Bachelor's—no Master's—Doctor's inbreeding	2.3	.5	3.9
Bachelor's—no Master's—Doctor's	2.1	1.6	2.5
Bachelor's inbreeding—no Master's—Doctor's inbreeding	1.4	.2	2.5
Bachelor's—Master's inbreeding—Doctor's	.8	.8	.7
No Bachelor's—Master's inbreeding—no higher degree	.5	.2	.8
No Bachelor's—no Master's—Doctor's inbreeding	.4	.1	.6
Bachelor's inbreeding—Master's—Doctor's inbreeding	.2	.1	.3
No Bachelor's—Master's—Doctor's inbreeding	.1		.1
No Bachelor's—Master's inbreeding—Doctor's	.1	.1	.1
No Bachelor's—Master's—Doctor's inbreeding	.1		.1

level. While many individual cases may be entirely justifiable, in the long run the effect of such inbreeding is likely to be distinctly narrowing.

The cases where the Bachelor's degree was received at the employing institution followed by the Master's or Doctor's degree or both at another institution before returning to the Alma Mater as a member of the faculty is much less objectionable; in fact it has much to recommend it, but only 29 per cent are of this type.

All of the data summarized so far in this study have referred to the year 1932. We are interested, however, not only in knowing where we stand but in what direction we are moving in this as in other phases of higher education. Apparently no investigation has attempted to discover whether faculty inbreeding is increasing or decreasing over a long period of years. It is true that one writer made the assertion seventeen years ago that "this practice has fortunately been on the wane in our country for a number of years," (9) but he offers no data in support of this statement. Even if it were true at the time it was made, which may be doubted, it would be desirable to investigate the trend since that time.

To secure objective information on this question, all the institutions were taken for which catalogues were available for any three of the four years 1902, 1912, 1922, and 1932. There were 34 such institutions, 11 publicly controlled and 23 privately controlled. A study for the three earlier dates was made similar to that reported in this paper for 1932 to discover trends during the present century in identical institutions.

The inbreeding among 718 faculty members in these institutions in 1902 was 31 per cent; in 1912 among 1,618 faculty members in the same institutions it was 34 per cent; in 1922 for 2,269 faculty members it was 33 per cent; while in 1932 it had increased for 4,569 faculty members in these same institutions to 41 per cent.

Such a situation is enough to give thoughtful administrators cause for serious consideration. If there is danger in inbreeding, as pointed out by President Eliot over a quarter of a century ago, the extent of this danger has increased rapidly, particularly in the last decade, if the situation revealed in the 34 institutions under consideration may be taken as typical. From 1902 to 1922 inbreeding decreased considerably in the publicly controlled institutions but increased in the privately controlled ones. Since 1922, however, the increase in both classes of institutions has been marked, increasing from 33 to 41 per cent in the entire group, an increase of one-fourth in a single decade. If the same rate should continue to 1942 the percentage of inbreeding would be in excess of 50.

It should be recalled that the amount of inbreeding found for the entire 219 institutions in 1932 was less than 34 per cent. It would seem to be time to "stop, look, and listen" to see whether the trend of the past decade is a healthy one, or whether the direction of travel should not be reversed before our higher educational institutions become too narrowly steeped in individual institutional methods, traditions, and background. The evident tendency toward provincialism in higher education needs to be changed for a broader catholicism. Indiscriminate inbreeding is likely to be as disastrous in the educational field as in the biological field. The data presented in this paper suggest, perhaps, the need for more careful attention to higher educational eugenics if the virility of the American college and university is to be continued and accentuated.

Academic inbreeding exists among over one-third of 17,000 faculty members in 219 representative American colleges and universities. It is greater in the East than in the South or West; in privately controlled institutions than in those under public control; in Catholic institutions than in those of various Protestant denominations; in institutions for men than in those for women; in large institutions than in small ones; in institutions with strong graduate schools than in those with smaller graduate departments; in older institutions than in those of more recent foundation; among instructors and assistant professors than among associate professors and full professors; and varies widely in different subject-matter fields.

Patterns of inbreeding are of many different types, but in almost two-thirds of the cases the highest degree, and in over half the cases all the degrees secured, were taken at the employing institution. Inbreeding has increased almost 25 per cent during the past decade, raising the question of the possible increasingly injurious effect on the virility of American higher education.

Notes

[1] Boston: Houghton Mifflin Company, 1908, p. 90.

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Pedro T. Orata

The Problem Professor of Education

That there exists today as wide a cleavage as there ever was between educational theory and practice is not a mystery to anyone, even to the most hopeful. Teachers who attend our summer classes are fairly certain that the theories of us professed educators are, in large measure, unworkable. In a meeting of county superintendents in Columbus, Ohio, only a short time ago, one of the speakers declared quite bluntly that educational theory is all "bunk," and has no more relation to school practice than the brand of tooth paste that teachers use. One writer, after making an extensive survey of the studies bearing on the correlation between the pre-service preparation and success in teaching said: "It should be at present impossible for any conscientious individual to advise students whether or not they should continue training for teaching."[1] On the other hand, professors of education often complain that the field is out of step with sound educational theory by insisting on the traditional practice of teaching logically organized subject-matter as an end in itself.

We teachers of education labor at length on the importance of providing for individual differences, while in practice we teach the same material to all the students in class regardless of their interests and abilities, use the same vocabulary, and refer them to the same sources whether they are just beginning in their study of education or are about to take their final examination for the doctorate. We have courses on guidance, but do practically nothing to guide the students according to the principles that we advocate; we subscribe to the principle of "learning by doing," but require the students to sit in overcrowded lecture rooms and smoky seminars to listen.

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We advocate co-operation as the essence of democratic method only to practice *laissez faire* individualism with a vengeance. Thus we prepare outlines ostensibly to serve as framework of the course, but not infrequently they are mere scraps of paper. Instead of helping the students they really confuse them. A course given by three instructors using the same outline means actually three different courses. Furthermore, the outline does not often correlate with the lecture and the readings; at least, the students do not often see the relationship that might exist among them. The instructor does much as he pleases regardless of the outline; the result is that the lecture is one thing, the outline a second, and the readings a third. And if the course is taught together by two or more instructors, the parts of the outline are as far apart as heaven and earth. Then if there are conferences arranged for small groups of students, the compartmentalization is further accentuated. And yet in the first course in education compartmentalization is a target of educational criticism.

We attack the teaching of text books and the use of formal methods, but we do not often see anything wrong with our practice of organizing our courses on the basis of the ground to be covered and of assigning the students to fixed seats according to the initial letter of their last names. We refer them to several books instead of one, to be sure, but the evils of book learning are not avoided by an ingenious device of multiplying the books that we require the students to read. We attack the Herbartian formal steps and the Morrison "mastery formula" of teaching procedure, and yet in one graduate course in education the following method was observed: The students were assigned a chapter or two from a book written by the professor in charge; the first half of the period was devoted to the reading of the chapters assigned by the professor himself before the class, and the rest of the discussion was spent in talking about anything but what the course was about. Traditional education may be all wrong, but the method just described is not even traditional, much less sensible.

We assume that indoctrination or even mild imposition is the antithesis of democracy, and yet we remain complacently unaffected if not personally elated by the fact that 99.9 per cent of the students agree with us. We all bewail the mere teaching of facts and information, and yet in many of our courses the type of examination that is used calls almost exclusively for facts and information from the lectures and the assigned readings. We emphasize reflective thinking and encourage the students to arrive at independent decisions, and then give them tests and examinations at the rate of five or more items per minute. We advocate adequate recording of pupil background and progress, and yet our records of the work of our students are bare except for the marks which they obtain in their courses. We emphasize pupil planning, executing, and judging, and yet our courses are all planned in advance for the students by the professors in charge. Sometimes the professor does not even plan his lessons. In interviewing student teachers we seldom give them a chance to find out their own errors, much less to correct them. They are told precisely where they failed and are given the formula for the next performance. We emphasize the value of educating for stimulating and promoting social sensitivity and yet make little effort to organize our courses so as to provide opportunities for students to associate socially with us or with other students. Our job is finished after we have written a book or delivered a lecture on the topic of socializing the individual. Finally, we criticize the practice of compartmentalization of school subjects in the lower levels, but see nothing the matter with our duplicating, compartmentalized, and repetitious courses in education. The whole teacher-training program is the most startling example of "the substance of things hoped for, the evidence of things not seen."

But why continue to enumerate? If one were to make a systematic analysis of the basic principles underlying sound educational practice one would likely fail to find a single item that is not being violated in our teacher-training courses. Theory is one thing; practice is another. There are exceptions, but they are too few and far between. A cynic is said to have remarked that there are only two things that are rarer than a day in June, namely, a writer of verse who is a poet, and a humorist who is funny. Had he attended classes in education he might have added a third, a professor of education who can teach.[2] A critic of progressive education, after examining the claims made for, and the corresponding practices in, so-called progressive schools, once said: "Progressive education achieves a verbal victory." In this sense our teacher-training institutions are truly progressive. They teach progressive theories in the most naïvely traditional manner.

That this serious indictment needs further examination is only natural. It is to the credit of teachers and administrators that they attend our summer classes periodically. At least they acquaint themselves, or try to, with new movements and tendencies in education. But how many of us take time off once in a while to visit the elementary and secondary schools in order to learn the changes that have taken place since we went to school, and therefore to learn the needs of the teachers and the problems that confront them? Time and again, students and teachers declare after listening to a lecture in education, "That is all very well, but show me how it may be applied in practice." The answer is, of course, that neither the student nor the professor knows how. If the student knew the answer, he would not be attending classes. On the other hand, if the professor knew better, he would not be just lecturing. The result is, as everybody knows, courses in education often do the students no good, and in many cases they do them injury.[3]

Something, however, should be said on the other side. Teachers and administrators have some responsibility in tying up theory and practice. While it is true that it is often difficult to apply theories and principles to concrete situations, it is even more evident that much more can be done about it than they are willing to admit. A visit to any school would show that professional books and magazines are not being used to advantage, and if they are made available to teachers at all their use is not often shown by the supervisor. The teachers and administrators are so preoccupied with details and routine of management that they become oblivious to the need of appealing to theory in order to secure guidance for practice. It is much easier and less troublesome to teach a textbook than to provide opportunities for promoting thinking among the pupils. Teachers, like the human beings that we all are, prefer to take orders and to operate mechanically on the basis of habits. On the other hand, many supervisors and administrators prefer to give orders because it serves to dignify their position, and because it is the surest way to the goal of efficiency.

It is true, of course, that teachers as well as professors have their alibi. They tell us, for instance, that the community is static and does not stand for the bringing in of controversial issues into the classroom. Hence, no thinking on vital social issues can be stimulated and promoted, and all the teachers can do is to teach the textbooks that are provided. Furthermore, vested interests of all kinds want to use the schools to protect their selfish motives regardless of the needs and welfare of the pupils. Such reasoning is a vicious paradox. The community brands the school for not training the pupils to think; the school board refuses to grant the superintendent powers that will make it possible for him to create school situations that are favorable for stimulating and promoting thinking among teachers on the ground that the community will not tolerate it; the teachers refuse to do any thinking because they are tied by a fixed curriculum and formal and standardized methods of teaching; professors of education cite statistics to show that the level of training of teachers in service makes it difficult if not impossible to get them to think for themselves; the pupils do not think and cannot think because teachers require them to recite their lessons and to pass factual examinations. And so on *ad infinitum*. The community receives back the pupils after they have been trained to conform to regulations.

The remedy is not, however, to abolish teacher-training institutions, much less for teachers to stop attending summer classes. The most obvious need is a more effective articulation between the field and the colleges or departments of education. Courses in education should be so organized that they rotate around the problems and needs of the field, and, on the other hand, the practices in the field should be based upon critically considered and evaluated principles of sound methodology. Professors of education should know the actual situations to which their theories will be applied, and teachers and administrators should be conversant with and critical of the underlying principles of their procedures. In a word, theories should be as practical as they are sound; and practices should be as sound as they are practical. If teachers and administrators do more thinking and professors of education do more concrete observing and applying, the cause of education will be greatly promoted. Teachers and administrators should deliberate more and professors of education should teach better.

What is the way out? As a practical next step it may be suggested that we should stop excusing ourselves and passing the responsibility to others. We should take the attitude that, in our limited spheres no matter what obstacles are present to hinder our activities, we can make significant changes in order to bring about progress and reform. We cannot wait for the other teachers to change their procedures before we do our part in our own "sphere of influence." The teacher-training institutions as well as the field have their contributions to make to the cause of public education. A closer articulation will result in better teaching in both places. It will redound to better service in promoting teacher thinking and pupil growth. It will advance the profession a hundred fold.

Let us enumerate a few specific remedial measures. First and foremost, we should be aware of the fact that our courses often violate the very principles which we advocate in them, and be able to make the necessary changes that will lead to a gradual but steady reorganization of these courses so as to exemplify in them the application of the theories which are advocated. This may take several years to do, but it can be done. One device which anyone can use is that of analyzing the course given with a view to determining the basic principles which are emphasized. Next, if one would determine the consistency of the organization and procedure used in the course with a view to providing appropriate remedial measures to correct the short-comings found, the chances are greatly enhanced that consistency of theory and practice would be attained. A schematic outline is suggested in Table I as a systematic method of implementing this suggestion.

TABLE I

A Suggested Scheme for the Analysis of the Content of a Course

		Extent of Effectiveness				
Basic Principles Advocated	Provisions Made	Examination Results	Student Opinion	Faculty Opinion	Summary of Evaluation	Remedies Used and Their Effectiveness
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Provide for emergence of independent point of view or philosophy of education.						
2. Provide for individual differences in interest and capacity in the direction of promoting unique qualities.						
3. Provide for effective guidance that will eventually lead to self-guidance on the part of the student.						
4. Reveal the need for an increasing sensitiveness to social and personal problems and corresponding ability to deal with these problems intelligently.						

Let us take the first principle and see what provisions might be made which will enable the student to arrive at an independent point of view or philosophy of education. First, in the selection of the readings we might give an increasing opportunity for the student to see conflicting philosophies of education and their implications to educational practice. Second, in the method used in class these points of view might be presented in a manner that will not prejudice the student in favor of any point of view which the teacher happens to hold without due process of evaluation and criticism. Third, the students should understand their term papers and examinations will be evaluated on the basis of clarity of thinking and consistency of viewpoint rather than on the basis of agreement with the instructor in his position, criticism, or opinions. There are other ways of providing for the gradual emergence of a point of view that is not a mere carbon copy of the instructor's philosophy. The next question is, How effective are these means? There are various ways of getting a satisfactory answer to this question. We have indicated three possibilities in the table proposed: an analysis of the results of examinations and term reports; a study of students' opinion; and a consideration of faculty opinion, namely, an assistant in the course.

The first device is simply used. Negatively speaking, if all the students agree with the instructor in what he says in the lectures by way of criticism of other philosophies and if in consequence they all adopt the instructor's philosophy, then it is quite clear that there is something wrong about the method and organization of the course. This calls for an analysis of the examination papers and of the term reports. What do we find? First, we may assume that there is hardly any evidence that the students have read the references, most especially those that present contrary points of view. Second, the students use the same arguments as the instructor used for his theory and against other theories. Third, the papers are organized in almost identical manner with the lectures and discussions. From this analysis we can immediately see a few guideposts for improving the course, but let us explore other ways of getting data for evaluation, namely, an analysis of students' opinion. Simple questions might be asked in a simple questionnaire which the students are not to sign, namely: What is your greatest difficulty in this course? Is it your feeling that you have to agree with the instructor in his views in order to get along well in class? Comment as you wish.

Let us now make other assumptions as to findings. First, the students evidence some difficulty in getting hold of the readings; they claim that they are confused because of the presence of conflicting ideas; that while they are not bound to agree with the instructor they see no better way out of their confusion than to agree with him. Let us suppose also that the faculty opinion is as follows: The students have recently come from high school where they were subjected to regimentation and in which they learned from textbooks and regarded the word of the instructor as infallible. To subject them to a course in which they are suddenly to be released from the bondage of tradition is just too much for them.

Now we are ready to consider the various data which show the effectiveness of the provisions made. What conclusions can we draw from these facts? First, the results show complete agreement with the instructor. This defeats the principle of providing for the emergence of an independent point of view in the student. Second, the students claim that they either could not get the books or else were confused by the conflicting points of view, and naturally they deemed it the easiest way out to agree with the instructor. Besides it is easier to learn than to think. Third, the students previously had been subjected to a rigid discipline in having to conform to the teacher's orders and in having to learn from books, lessons that were assigned in advance. These three items will or should enable the instructor to plan some measures to avoid the shortcomings. Let us further assume a few remedial measures: first, increase the number of reference books per student; second, simplify the course so as to lessen the number of conflicting views from say, four to two; third, study the readings with reference to their degree of difficulty and either change them or else provide guide questions which will enable the students to center their attention on basic points, or else substitute easier references; fourth, organize small discussion groups which will enable the students to participate in the evaluation of various proposals including those of the instructor; fifth, re-word the examination so as to call for evaluation of theories rather than mere recall of facts learned; sixth, in the lectures see that the shortcomings of the instructor's point of view are brought out to the open; seventh, if there are assistants who conduct the conferences they should try to stimulate criticism of the instructor's point of view in the conferences. There are other remedial suggestions that can be given, but here are a few. Now then, the next step is to try out these remedial measures and subject them to the same rigid, critical examination. Again, analysis of results will follow. The opinion of students and of faculty members will be sought. On the basis of the data obtained, further improvement is made. This, in the concrete, is what is meant by the phrase "continuous re-evaluation of courses as a method of improving them."

There is immediate need of the elimination of many courses in education to avoid duplication and to make possible a greater amount of integration. The number of hours in education required for graduation should be reduced considerably. A great deal of what the students get from our courses consists of empty verbalization about objectives and the curriculum and a correspondingly vague discussion of the reconstruction of the social order. The amount of duplication of present courses is immense as many studies have pointed out.[4] The result is confusion due to differences in interpretation among the various members of the teaching staff. Also, where there are so many courses, the attention given to students is not as it should be. Oftentimes graduate assistants take charge of the conferences in the basic courses, and the major professors spend their time in so-called advanced courses which repeat the content of the earlier offerings. Where there are graduate courses, the neglect of the undergraduate is further accentuated. The result is that the undergraduate student body becomes a veritable guinea pig for graduate assistants to practice upon. The need and welfare of these young people who will go out to teach are sacrificed because of the desire of the department to promote its graduate level. Where the welfare of one is served the interest of one hundred is sacrificed.

There is an immediate need for a valid and systematic way of evaluating teacher-training courses in terms of their ultimate and immediate objectives. We must go far beyond the enumeration of objectives and the outlining of courses. The analysis already offered gives a clue. Examinations should be so carefully planned that the results when analyzed critically would show the extent to which said objectives have been attained and point to ways of providing adequate and effective remedial measures. The work of the graduates should be diagnosed with a view to gaining an insight into their problems and difficulties for which we have failed to provide. In most cases we neglect this phase of the course. We formulate high-sounding objectives and then use examinations that measure mere acquisition of subject-matter or assign term reports that bear little or no relation to the problems of actual teaching. Naturally the students learn the facts and the theories but are unable to use them in dealing with classroom situations with which they will later be confronted.

The foregoing comments and criticisms will likely provoke some discussion among professors of education who will take exception to every point in defense of their position and cite examples in their own classes of the suggestions made here being already carried out. Let us grant that there are some significant exceptions, but as Mr. Bagley once pointed out, we cannot deny that they are entirely too few and far between. At any rate these criticisms are no fabrication. They are offered here as "live hypotheses" if we want to test them. As a practical test, it is suggested that the criticisms be submitted to students of education in the form that they are given here.

That the situation described in this paper should prevail is only natural. For so long professors of education have been preoccupied with theorizing and researching on the shortcomings of their colleagues in the profession that they have overlooked the fact that their own house needs an entire overhauling. In fact, they have be come veritable specialists in methods of teaching the other fellow's field. It is only in recent years that they have become concerned about the need for the reorganization of courses in the teacher-training field. And curiously enough they are now attempting this reorganization by the expedient but ineffective device of adding new courses to a curriculum that is already overcrowded. The result is, as everybody knows, a makeshift. The evils of compartmentalization and formal learning cannot be avoided by giving the students more of the same kind. A thorough revision of the teacher-training program based on the problems of the field and a corresponding revision of methods of procedure to achieve consistency with the principles that are advocated, not mere quantification, mechanization, and standardization of teacher-training courses, will lead to the attainment of the objectives of the program of teacher education, most of all in a country where the principle of "learning by doing" is preached so constantly.

Notes

[1] Corey, S. M. "The Present State of Ignorance about Factors Affecting Teaching Success," *Educational Administration and Supervision*, XVIII (October, 1932), pp. 481–90.

[2] Professors of education themselves are aware of this irony. *See* Bagley, W. C., *Education and Emergent Man* (New York: Thomas Nelson and Sons, 1934), p. 196; also Judd, C. H., "Raising the Level of the Education of Teachers," *School Review*, XLIV (April, 1936), pp. 257–67...

[3] Corey, *op. cit.* Judd, *ibid.*

[4] Corey, S. E. "Textbook Overlapping in the Teachers' College Curriculum," *Educational Administration and Supervision*, X (January, 1933), pp. 25–37.

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The Reporter

A new graduate degree, Masters of Arts in Teaching, jointly administered by the Faculty of Arts and Sciences and the Faculty of Education, is being offered at Harvard University. The degree requires certification by the Arts and Sciences faculty of accomplishment in the subject to be taught, and certification by the Education faculty of fitness for teaching as prerequisites. (1939)

Earl J. McGrath

The Dean

This investigation has attempted to trace the appearance and development of the office of dean of colleges of arts and sciences in institutions of higher education in America since 1860. The office has been studied in 32 institutions of various size and geographical location. The study has sought to answer the following questions concerning this office: When was it established in these institutions? With what other administrative offices has it been combined? What teaching responsibilities have deans had? What degrees have been held by incumbents of this office? What has been the length of tenure of these officers?

The study of the office has been limited to colleges of arts and sciences in four groups of institutions. Eight state institutions were selected: Illinois, Indiana, Iowa, Michigan, Missouri, Nebraska, Ohio State, and Wisconsin. Eight large eastern institutions were chosen: Brown, Cornell, Dartmouth, Harvard, New York University, Pennsylvania, Princeton, and Yale. Eight small eastern institutions—Amherst, Bucknell, Colby, Colgate, Hamilton, Lafayette, Wesleyan, and Williams—and eight small western institutions—Beloit, Carleton, Grinnell, Knox, Lawrence, Oberlin, Olivet, and Wabash—were included also. In the small eastern and western institutions there has been usually only one dean, since these institutions are and have been largely colleges of arts and sciences. But in the large eastern and state universities many other academic divisions are found, and customarily each of these divisions has a dean as the chief administrative officer subordinate to the president.

For several reasons no attempt has been made to trace the development of the dean's office in these other, professional divisions of the

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larger institutions. In the first place, the scope of the study would have been expanded unduly by this procedure, and second, it was necessary to maintain a comparable basis between the small institutions with only a department of liberal arts and sciences, and the larger institutions with many divisions. This study considers, therefore, only deans of the divisions representing the arts and sciences. However, it has been found of value to indicate deanships which existed earlier than that of dean.of the college of arts and sciences without making any attempt to trace them systematically. This investigation has been carried on in many of the state and large eastern institutions and the results indicate that the title of dean was used much earlier in schools of law and medicine than in colleges of liberal arts. The first deanship recorded in the thirty-two institutions studied was established at Harvard Medical School in 1816. It was held by John Collins Warren from 1816 to 1819. Other deanships established later were: of the Divinity School at Harvard, 1832; of the Medical Faculty at Yale, 1853; of the Medical Faculty at the University of Pennsylvania, 1867; of the Faculty of Law at the University of Wisconsin, 1868; of the Medical Department at the University of Iowa, 1869; of the Medical Faculty at the University of Michigan in 1871; of the Medical Faculty at Dartmouth in 1875. In this study, however, the reference is to the office of dean of the division of arts and sciences. Likewise, the deans of women, of men, and of freshmen have not been considered.

In tracing the origin of the office of academic dean the first year in which the office appeared in each institution is considered as the date of establishment although the office may not have been in continuous existence since that date. All the institutions except one have had the office of dean at some time in the period 1860 to 1933. Colby College has never had the usual academic dean, but twice has had a dean of men who performed the common functions of the academic dean. Therefore, certain parts of the report refer to thirty-one institutions.

The median years of establishment of the office of dean in the four groups of institutions are as follows: The large eastern institutions have a median year of 1881 with a range from 1854 to 1899. The state universities follow with a median year of 1883 and a range from 1871 to 1896. These two groups of institutions established the office earlier than the small eastern and small western colleges and universities which have median years of 1891 and 1898, respectively. The median for the thirty-two institutions combined is 1891 with a range from 1854 to 1918. Figures for the small western institutions conform rather closely to those of Miss Partridge who studied the dean's office in thirty liberal-arts colleges in the north central region of the United States.[1] She found a median year of establishment of 1904. This figure is six years later than that of the present study, but this divergency is to be explained by the fact that the group of institutions in the present study is larger than that studied by her.

In a study of the origin and development of the deanship in 319 liberal-arts colleges Mr. Ward found the median year of establishment of the office to be 1913.[2] The disparity between his figures and those in the present study is to be explained by the difference in the selection of institutions, for he included institutions established as late as 1930. In fact, 86 institutions included in his study were not in existence in 1891, the median year of establishment in the present study. This procedure would naturally raise the median considerably.

Only one of the 32 institutions had established the office of dean by 1870. In 1880, this number had risen to ten, and by 1900, the office had been established by 78 per cent. In all the large eastern and state institutions the office of dean had appeared by 1900. The general fact disclosed by these figures is that the office of dean of the college of arts and sciences appeared first in the larger institutions. The difference in the date of establishment of this office in the large eastern and the state institutions is insignificant. It appears, therefore, that the geographical location of the institutions has not been the determining factor. The fact is that the office of dean has been a response to the president's need for administrative assistance. The following statement of Dean Hawkes, of Columbia, concerning the dean's office is only partly confirmed by the facts thus far presented:

> There is, however, no such thing as a standardized dean. . . . As a matter of fact the position of dean in the American college is a comparatively recent development. . . .
>
> One may say roughly then, that the position of dean of a college took on a significant development about twenty-five or more years ago. Since that time the duties attached to the office have increased in scope. In many institutions some of the duties have been delegated to different individuals as they have become clearly differentiated from each other, until at the present time in very few institutions is the position of dean a highly centralized administrative office.[3]

The numerous titles used to describe the office, the wide difference in teaching assignment, and the variation in degrees held, all go to prove that there is no "standardized dean." But the figures presented indicate that the office of dean had a substantial development in the larger institutions at least some years before 1905, the year to which Dean Hawkes ascribes the significant development of this office. The large percentage of institutions having the of office before 1900 seems to cast some doubt on Dean Hawkes' generalization.

In the 32 institutions studied there have been 165 deans from 1860 to 1933. Of this number 160, or 97 per cent, have had teaching assignments throughout their incumbencies. Two others have taught for only a portion of their careers as dean. Three, or 2 per cent, have done no teaching while occupying the office of dean. These five cases of deans who did no teaching are so scattered chronologically that no trend is apparent toward a larger percentage of deans who either teach or who do not teach. All but one of the 30 deans in office in 1933 have teaching duties. The deans who have not had teaching assignments are spread over three of the four groups of institutions. Consequently, there is no tendency for any particular type of institution to have deans who do not teach. Thus these figures show that the dean's office is one that almost universally combines teaching with administrative duties.

The facts presented concerning the teaching duties of deans are confirmed by Miss Partridge's study of teaching responsibilities of deans in 30 colleges of liberal arts in the north central region. She writes as follows: "An analysis of figure six indicates that all the deans in this group of colleges have had teaching responsibilities for the entire period in which they have been listed.[4]

A study of the teaching duties of deans indicates that these officers have taught in all fields of subject matter except the fine arts. No dean since 1860 has had a teaching assignment in this field in any of the institutions. Furthermore, only a few have been teachers of the biological sciences, the total over the period being only 4 per cent of those who taught. Even in the state universities the percentage of deans teaching biological science is only 4. The small percentage of deans teaching in biological sciences is not to be explained by the fact that biology came into the curriculum at a late date, because fewer have taught in this field in recent years than in the early years covered by this study. Only one person, or 2 per cent, of the deans holding office in the state institutions from 1860 to 1933 has taught in the field of religion, philosophy, and psychology, while 12 per cent are found in this category in the 23 privately endowed institutions. There is an increasing tendency in recent years for private institutions to select deans from the field of modern language and literature, the percentage teaching in this field in 1933 being 38, while in 1890 it was only 14. There is also a significant decrease in the number of deans who teach in the field of the classics, the percentage falling from 54 in 1890 to 10 in 1933.

Mr. Ward's data on teaching fields of deans in 1933 are confirmed by those in the present study with the exception that he finds a smaller percentage of deans teaching in the field of modern language and literature and a larger percentage in the field of religion, philosophy, and psychology.[5] This disparity may be due to the fact that he has included a number of small sectarian institutions which still offer a large selection of courses in religion and related fields. With the exception of the fields of the biological sciences, and religion, philosophy, and psychology, the percentages of deans who have taught in the various fields of knowledge are not sufficiently at variance to be significant.

A study of the highest degrees held by deans in the institutions of higher education is presented in Table I. Each group of institutions was first studied separately. It was found that they were sufficiently similar to be compiled together. In the smaller groups there was a slightly greater tendency for small and large eastern institutions to select deans with a professional degree, six having held the degree of Doctor of Medicine and one the degree of Mechanical Engineer. There is also an indication that fewer deans in eastern institutions have held the Bachelor's degree.

An examination of Table I, based on thirty-one institutions, reveals that the percentage of deans holding the Bachelor's degree as their highest degree has not changed materially since 1880. In 1880, 10 per cent held this degree and in 1933, 7 per cent. Over the entire period the Bach-

TABLE I

Highest Degrees Held by the Indicated Percentages of Deans in the Thirty-one Institutions of Higher Education in Selected Years

Year	Bachelor's	Master's	Doctor's	Professional	Total Number
(1)	(2)	(3)	(4)	(5)	(6)
1860				100	1
1870	100				1
1880	10	60	20	10	10
1890	9	46	27	18	11
1900	8	52	36	4	25
1910	7	41	48	4	29
1920	7	38	52	4	29
1930	6	19	72	3	32
1933	7	19	74		31
Total	8	35	53	5	169
1860 to 1933*	7	35	55	4	165

* Based on all deans holding office in these insntutions from 1860 to 1933.

elor's degree was held by 7 per cent of deans. There has been a steady decrease in the percentage of deans holding the Master's degree. Sixty per cent of deans had the Master's degree in 1880. This percentage dropped to 19 per cent in 1933. The decrease in the percentage of deans holding the Master's degree has been offset by the increase in the percentage holding the Doctor's degree. The percentage has risen from 20 in 1880 to 74 in 1933.

It is of interest to compare the highest degrees held by the presidents of these institutions with the highest degrees held by deans. The percentages of presidents and deans holding the Bachelor's degree over the period 1860 to 1933 have been substantially the same, 9 for the presidents and 7 for the deans. Of the presidents, 53 per cent have held the Master's degree while only 35 per cent of the deans have held that degree for the same period. The percentages of presidents and deans holding the Doctor's degree have been 30 and 54, respectively. Moreover, 5 per cent of the presidents held a professional degree while this type of degree was held by 4 per cent of the deans. Therefore, in the case of the Bachelor's and professional degrees both groups are about alike. They differ in the other three categories. While 3 per cent of presidents had no degree, there was no dean without some type of academic degree. The deans held significantly fewer Masters' and more Doctors' degrees than the presidents. In so far as advanced degrees measure preparation for administrative work the deans have been better prepared than their immediate scholastic superiors. This advantage is especially notable in recent decades. Consequently, the dean's superiority in this regard cannot be explained by the fact that the office is of more recent origin than the presidency.

The median of tenure in years for deans in the eight small western institutions is the lowest with three, while the eight small eastern institutions have the highest median of seven years. The eight state institutions and the eight large eastern institutions have medians of five and six years, respectively. Hence these figures indicate that the rate of turnover in the office of dean is highest in the small western institutions. The differences between the other three groups of institutions are hardly large enough to be of significance. The median number of years for all institutions is five with a range of from one to thirty-three years. The occupants of the office of dean have had relatively short periods of incumbency.

In summary it may be said that the office of dean was established in large eastern and state institutions earlier than in the smaller colleges. By 1900, 81 per cent of these thirty-one institutions had a dean of the college of arts and sciences. The incumbents of this office, with rare exception since 1860, have had teaching duties. There is no indication that in recent years the office is becoming a purely administrative one. Deans have taught in all fields of knowledge but one. In recent years a larger percentage of these officers has been chosen from the field of modern language and literature. A large percentage of deans has held the Doctor's degree in recent years. The median tenure of deans since 1860 has been five years.

Notes

[1] Partridge, Florence A. "The Evolution of Administrative Offices in Liberal Arts Colleges from 1875 to 1933." 1934. An unpublished Master's thesis on file in the library of the University of Chicago.

[2] Ward, Merle Scott. *Philosophies of Administration Current in the Deanship of the Liberal Arts College.* New York: Teachers College, Columbia University, 1934, p. 22. (Teachers College, Columbia University, Contributions to Education, No. 632)

[3] "College Administration," JOURNAL OF HIGHER EDUCATION, I (May, 1930), pp. 245–46.

[4] *Op. cit.*, p. 48.

[5] *Op. cit.*, p. 39.

David Snedden

Some Anticipations

If the American institutions of higher education continue for the next fifty years to grow in magnitude and to assume new functions as they have done since 1880, what will they be like in 1980? And another "if"—suppose that these prospective expansions and these adoptions of new functions should during the next half-century be guided far more than was practicable earlier by fairly scientific prevision of best services to be rendered, by fairly scientific determinations of means, methods, and adaptations of their working to varying types of students, and by really scientific training of college teachers for their work—then what?

For convenience of terminology, the first anticipation here expressed will be: that presently all distinctive higher teaching institutions, professional as well as liberal, will be called "colleges"—instead of the older term "schools"—for training agencies for the professions; that all distinctive research agencies will be called "institutes"; and that a university will be simply a federated aggregation of liberal and vocational colleges and of institutes.

Columbia University, as an example, consists of three liberal-arts colleges, Columbia, Barnard, St. Stephens; a number of vocational colleges, now denominated professional schools, of law, medicine, engineering, architecture, journalism, education, practical arts, (college of) pharmacy, business, dental surgery, and library service; certain faculties of graduate study, in political science, philosophy and pure (natural) science; certain specialized divisions for research, in the social sciences, in the humanities, in cancer research; and certain other comprehensive organizations of instruction, summer session, university extension. Such an expanded uni-

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versity is, as the president of Columbia said in his report of 1930, a "federation," presenting interesting analogies to the United States as a federation of commonwealths, each of which has assigned to the central agency certain functions, retaining full responsibility for others.

The evolutionary processes which have added new institutions to the original Columbia College began in 1858 with the organization of a professional School (College) of Law. Additional expansions have been especially numerous during the first third of the present century. On the assumption that the present economic depression proves no more permanently arresting to fundamentals of America's growth than have earlier depressions, what are some prospects which can be reliably forecast for 1980, for Columbia, and for more than a score of other American universities? All large American universities are alike expanding federations of colleges. The problems of any one, especially as regards optimum functions of member colleges, of interdependencies between vocational and non-vocational colleges or departments, and of further expansions and differentiations of offerings, are largely the problems of all.

It is here intended to hazard some personal forecasts as to probable evolutions of American colleges which it is believed will attend more scientific study of optimum functions of such institutions during the coming half-century, in answer to these three queries: Will many more kinds of vocational colleges be added or differentiated? What will progressively become the functions and constitutions of graduate teaching and research departments? What will finally be the functions and constitutions of liberal colleges or their equivalent undergraduate departments of arts and sciences?

In older universities only three learned professions were provided for—law, medicine, and theology. Now Americans talk vaguely of engineering, teaching, and nursing as professions. Actually, however, the large modern university is evolving and will continue rapidly to evolve scores, if not hundreds, of distinctive colleges to give specific vocational training for those higher vocations, which with the elaboration of activities are in effect the newer professions.

There is no longer one profession of engineering but more than a dozen—with little beside the name and a few chapters of mathematics in common, as between, for example, chemical engineering and civil engineering. The "Teachers College" of Columbia University is in effect an aggregation of forty or more professional colleges, one of which trains mature teachers to be superintendents of schools, another trains home-economics teachers, and a third of the forty trains kindergarten principals.

Already at least a half-dozen nursing professions are in process of rapid emergence—and, in spite of oppositions of veteran trainers of nurses, each of these half-dozen is certain presently to evolve its own completely distinctive program of vocational training. The up-to-date "medical college" is becoming a "medical center"; that is, a center, now of five or ten, and presently of twenty or fifty colleges, each training for a distinctive profession working toward health conservation.

The larger universities have recently evolved professional" schools of journalism." But who, in fact, is "a journalist"? The modern newspaper has reporters, editorial writers, financial specialists, illustrators, managers—all, we trust, rising steadily toward "professional" levels of competency. Presently there must be a half-dozen distinctive colleges preparing for the several journalistic professions.

Even more proliferations are likely to subdivide "schools of business administration." It is safe to prophesy that presently all "leadership" places in business—superintendents, directors, executives—will be ranked with the older professions, not only in prestige and influence (as they are now), but as respects requirements of technical preparation. For logical completeness, let us embrace all forms of business leadership as "managerial" professions—all involving management of large numbers of workers and materials. Then we can distinguish and classify "managerial professions" as those of armies, of navies, of school systems, of hotels, of railways, of department stores, of banks, of great farms, of insurance companies, of newspapers, of mines, and of some score of others, including even "city managers." We already have distinctive professional colleges to train army managers, ship managers, and school-system managers. We have at least one to train hotel managers. We are almost certain to differentiate at least a score of others presently out of our "omnibus" schools of business administration.

Much uncertainty of educational purpose and planning has heretofore persisted because of unwillingness of academically minded educators to face the full implications and responsibilities of vocational training for the professions. Our original colleges of law and medicine did not actually train for practice. They only gave lectures and textbook courses on certain phases to supplement apprenticeship learning. Even yet almost none of the thousand American colleges actually give our high-school teachers any "full competency" training for the score or more possible secondary-school teaching vocations.

And there are even yet many "half born" or nascent professions for which some liberal-arts courses are widely believed to be valuable prerequisites. But as we build a clarified science of educational values, there seem to be no good reasons why all such nascent vocations should not be given searching diagnosis in early stages and then appropriate curriculums of full-fledged or part-fledged professional training be devised for them.

During the next fifty years, then, it is predicted that the number of distinctively professional colleges within our larger universities will greatly increase. Each one will focus its training processes even more sharply than at present toward producing superior proficiencies in some one of the increasingly specialized professions in which the technical or leadership work demanded for the world is done. And we trust that each will presently discard academic philosophizings about "background" or "fundamental" or other vaguely evaluated courses. These represent in fact carry-overs or rationalizations by professors of academic or purely aspirational prepossessions who are prone to conceive the professions romantically.

What of the future of graduate courses, graduate departments, schools of graduate studies? In large measure, these are now the nurseries of the undifferentiated or meagerly differentiated professions earlier referred to. Suppose there were scattered among the larger universities of the United States six professional colleges devoted solely to the work of training first-class instructors for undergraduate liberal-arts colleges. Suppose there were one great vocational college in the entire country specialized for superior training for each of these prospective professions: archaeological-research specialists as a profession, researchers in organic chemistry as a profession, forestry experts, social workers with dependent children, professional economists, and many other similar fields of advanced specialization. Under such conditions what would be left of our "graduate" courses and so-called "graduate schools"? In all fields of study in which well-endowed research has long been in progress what opportunities for really new and valuable research remain for the graduate non-professional student, in candidacy for a Doctor's degree? Probably little of importance.

With exceptions to be noted later (graduate stages of liberal-arts colleges) it is inferred that most of what now constitutes graduate studies will have been evolved into distinctively professionalized curriculums, and that one or a few centers will provide ample training service for all needs.

The central functions of the American liberal-arts college, or its equivalent "departments of arts and sciences" in western universities, are now badly defined. Large proportions of so-called "liberal" courses have been believed to have prevocational, preprofessional, prebusiness, values. Professors of natural sciences, mathematics, English-language branches, social sciences, and the like have constantly alleged to credulous students and citizens that these studies were "foundations" to later economic success. Debate on "Does a college education pay (financially)?" has nearly always been decided in the affirmative, unconsciously on the *post hoc*, of the ability selecting powers of such agencies, rather than the *ergo propter hoc*, of evidence of the actual vocational functionings of collegiate learnings.

Now, with the multiplication of professional or quasi-professional vocations into which men of collegiate rank wish to enter, the situation of the liberal-arts college becomes badly confused. Professional colleges naturally desire mature and hand-picked students. They desire, too, to have students come with substantial preparatory or basic learnings, vaguely defined and evaluated as these still are. Then, too, there persist beliefs, which are probably wholly academic illusions, that it is somehow important, if not to prospective professional people personally, at least to their social usefulness, that some "liberal" (college) education should be acquired as "background" for the higher vocations.

Under these conflicting pressures the present-day liberal-arts college has been distorted and artificialized. Many observers have predicted its doom. Some institutions have tried to vivify and preserve its lower half as a "lower division" or junior college. But there still persist confusions of "liberal" with "prevocational" functions. Lower division or junior-college classes are crowded with students who have no heart for more "liberal" education than they got in high school, but who are perfunctorily meeting "prerequisites" in order that they may buckle into realistic professional studies. The present situation seems to be a good deal of a mess. The president of Columbia University put the case mildly when in 1930 he said: "The intermingling of training in the essential elements of a liberal education with the studies chosen in preparation for the practical affairs of life has brought about odd and sometimes unfortunate results." The present writer's valuations can be inferred from the following "forecasts."

In 1980 there were in the United States about one thousand liberal-arts colleges—some two-thirds under public support and one-third endowed by religious or other philanthropic foundations. All had "junior" divisions two years in length, and about half had "senior" divisions. And some one hundred of them, usually in the largest universities, had "graduate" divisions. Degrees of "Associate," "Bachelor," and "Master" (A.A., B.A., M.A.) were offered at the end of each respective division.

These liberal colleges offered no avowedly preprofessional or other "prevocational" courses—not even for the teaching professions. None of their courses were "required," or even accepted for credit, by the hundreds of kinds of professional colleges then in operation.

The functions of these liberal colleges were exclusively to extend, diversify, and enrich the strictly non-vocational learnings of young Americans beyond the levels reached in the lower schools. The two major divisions of these non-vocational studies were the "civic" or political leadership and the "personal cultural"— or together the "liberal" studies. "Health-conservation" studies and pursuits constituted one minor; a second was family-membership studies; and a third embraced "personal religion" studies.

No particular studies were "required" of all students in these colleges. Each student could "elect" from the riches of courses in literature, natural science, social science, history, music, geography, English speaking and writing, foreign language, indoor avocations, outdoor avocations, and the like, those offerings in which he had strong interests and from which his advisers believed he could derive much profit.

By 1980 all purposed interdependencies of liberal and professional colleges had come to an end, and especially those interdependencies which had tended from 1900 to 1930 to make liberal-arts colleges simply glorified preparatory schools to the professional colleges.

Each type of professional college had its own standards of admission, in measures of native mental ability, maturity, previous experience, and the like. For example, all "managerial" colleges required a minimum age of twenty-seven for admission, and at least four years' successful experience in operative work in some division of the fields over which training for managerial responsibilities was sought. Professional colleges for nurses and elementary-school teachers required a minimum age of twenty and an intelligence quotient of 110, while medical colleges admitted no students under twenty-one years of age.

But each type of professional college assumed entire responsibility for all "studies" required for its degrees. If the vocation called for articular learnings of mathematics or a foreign language or natural science or literature or manners or body powers or social science, the professional college itself provided these as needed. Almost never, it was found, could high-school or liberal college studies, taken for purposes of cultural or civic education, be valued as really "functional," prevocationally or otherwise, for the vocation.

Thus the liberal college was entirely freed, first, to offer courses only of proved functional significance for civic competencies, personal cultures, and other non-vocational achievements; and, second, to dispense with any and all students whose interests in liberal studies were purely perfunctory.

The Reporter

During the dedication of a million dollar building recently, the University of Omaha boasted that it has the distinction of being the only completely air-conditioned university in the world. This institution has been called one of the fastest growing and most modern municipal universities of the country. (1939)

Recently Harvard University has discontinued the sale of beer in all its dining halls. According to the report of Business Manager Aldrich Durant the required licenses were five in number, costing a total of $2,400 a year. During the period from January 1 to October 31, 1934, but 27,000 bottles were disposed of at all the places of sale. This sale was insufficient to justify the retention of the expensive licenses. (1935)

For the first time in the history of the University of Chicago the windows of the Harper Memorial Library have been washed. Following the Oxford tradition, the authorities at Chicago years ago decided not to wash the library windows, but they have now become so black and the library has thus become so dark that the Oxford tradition has been abandoned. (1937)

Book Reviews

A Philosophic Landmark

The Quest for Certainty, by John Dewey. New York: Minton, Balch and Company, 1929. xi + 313 pp. $4.00.

BOYD H. BODE, Ohio State University

This volume is based on the Gifford Lectures given by Dr. Dewey at the University of Edinburgh in the spring of 1929. It is an extended presentation of his experimental theory of thinking and knowledge. His point of departure is the proposition— from which the title of the book is derived—that the hazards and vicissitudes of life inevitably impel man to engage in the quest for certainty. This demand for certainty explains man's predilection for a realm from which these disturbing traits are barred. On the level of religion the quest for certainty has led to the traditional doctrine of heaven; on the level of science it has inspired a conception of reality such as is typified by the traditional doctrine of changeless atoms.

Multitudinous forms of this belief that reality in its essence is something fixed and unchangeable are found along the whole weary trail of human development. They all rest on a misunderstanding of the nature and function of thought or concepts in experience. When it is said that water consists of hydrogen and oxygen, all that we are entitled to infer from this is that certain things can be done with water, or that certain things may be expected from it. The chemical formula is just a convenient tool or handy device for the utilization of previous discoveries. Water does not cease to be water merely because we have found out certain things about it. For most of us, however, the tradition of the past, with its dead weight of accumulated habits, is too overpowering. Knowledge is not just an instrument for dealing with present experience, but is rather a mode of access to an antecedent reality which stands in a relation of contrast to the world of everyday experience. We are all familiar with the ghostly skeleton so painstakingly constructed by science and offered to us, without flesh or blood or sensuous covering, as the "real" world. This mode of procedure explains why we emerge with a world in which man is the helpless creature of circumstance. It explains also why men, ordinarily not deficient in a sense of humor, can gravely maintain that the water which we drink and with which we wash our faces is "really" not water at all, but something that does not have the slightest resemblance to the properties of water.

This is the kind of result that may be expected when we regard knowledge as a "constitutive" and not as an "instrumental" thing. The assumption that knowledge gives us a reality that is set over against the world of sense-perception has been an obstacle to science, to social development, and to religion. Newton's justification for the doctrine of atoms was that the doctrine was necessary in order that "nature may be lasting." The universe would dissolve into chaos without them and certainty would be impossible. As Dr. Dewey comments: Metaphysical fears rather than any experimental evidence determined the nature of the fundamental assumptions of Newton regarding atoms (p. 118).

This new approach, as the author indicates, may rightly be called a "Copernican revolution." It provides a basis for a new logic, for a new theory of values, and for a new interpretation of the relation between science and religion. It discourages attempts to find remedies for human ills by short cuts, but at the same time it gives new encouragement to the faith that the exercise of intelligence can remove mountains and that the basis of certainty must be sought in man's power to control his environment.

In a word, the book is a challenge to all our traditional ways of thinking. Students of Dewey will find the fundamental idea more or less familiar, but it is presented here in detail and with such a variety of application that the volume may be regarded as a landmark in philosophic thinking. It is a notable book by a noted thinker and perhaps—who knows—is the foreshadowing of a transformation in our whole intellectual and spiritual outlook.

Problems and Practices

College and University Administration, by E. E. Lindsay and E. O. Holland. New York: Macmillan Company, 1930. xv + 666 pp. $4.00.

S.P. CAPEN, University of Buffalo

Treatises on this subject are few. The literature, already voluminous, consists largely of brief articles in professional periodicals and convention proceedings. Among these contributions are now many that deserve the name of studies. The time had come for a comprehensive treatment of the problems and practices of university administration which should be based on this widely scattered and episodic material. The authors, in attempting such treatment, have revealed something of the extent and complexity of the subject, and have assembled in one place much useful information—not all of it impeccably accurate.

After a brief historical introduction, the book deals in a single chapter with the constitution, powers, and obligations of the governing board, and with certain administrative officers and their functions. There is a section on academic administration covering institutional organization and instructional administration. There is a section on personnel administration dealing with the administration of the faculty and the student body. A final section discusses what the authors believe to be current trends. The appendices contain a number of useful blank forms. The bibliographies at the ends of several chapters are valuable.

But a visitor from Mars, or even from Europe, would gain from this volume a very misleading idea of American higher education. If he had read Mr. Flexner's[1] book first, his worst forebodings would be confirmed at the hands of these patriotic expositors. The symbol of the university in America, he would conclude, is really the Ford plant, complete with field agents and national advertising. The picture is so detailed that even the faith of a native is shaken, until he identifies the peculiar provincial bias of the authors, and makes a shrewd guess as to the limitations of their experience.

The bias is twofold. It is in favor of the state institution, particularly the land-grant college; and it is in favor of the mechanistic conception of university administration. American higher education, the authors seem to say, is typified by a state-supported public institution of swelling enrollment; estopped by political pressures from closing its doors to any high-school graduate however stupid or indolent; relying for resources to enable it to swell some more, first on sturdy athletic teams and the thoughtless repetition of its name by excited unintelligent sport-fans, and second on the scarcely more subtle influence of a far-flung army of extension agents; regimenting the intellectual life of its students in stereotyped classes under the direction of a staff, nicely graded as regards costliness, and loaded with discreet perception of the relative strengths of the backs of old and young camels; regimenting the moral, social, and religious life of its students under cohorts of house mothers, deans of men and women, graduate managers, and Y.M.C.A. secretaries; doing a little graduate work (an excursion into the empyrean which is defended by arguments both hard-headed and sentimental); promoting with brave gestures research in practical problems principally through the Federally fostered experiment stations, but otherwise looking askance at research as a diversion of the professor's time and strength from teaching. In short, there is suggested the university of the Rotarian's dream, "service" and all.

To keep this monstrosity going, there are mechanisms tried and true—they are described with a wealth of detail. There are standardized officers with standardized duties—and the officers are named and their duties enumerated There are devices, devices for keeping professors in their place, for preventing contractors from making scenes, for ordering and purchasing and assigning floor space—and they have a mystic perfection.

In all this there is no recognition of certain powerful controlling forces external to the university, nor of the significance of movements within the university that are transforming it more rapidly than any other institution, not excepting the high school, has been transformed. For instance, the influence of the great professional associations, of the associations of professional schools, and of other standardizing agencies, including the stronger state departments of education, appears to have escaped the authors' attention. The tutorial and honors systems are set forth merely as teaching devices in a few non-typical institutions, rather than as symptoms of a nation-wide effort to regenerate the intellectual life of undergraduates.

Professional education—except in the professions of engineering and agriculture, the traditional sphere of the land-grant college—is passed over almost as if it did not exist, and the bearing on university ideals and objectives of the recent extraordinary reforms in certain fields of professional education, notably medical education, is ignored. Nowhere is there reference to the overshadowing issues of higher education: the new integrations and new syntheses demanded by the rapid expansion of the field of knowledge, the content and method and appropriate location of general education, the boundaries of specialism, the determination of the proper role of the university as a preparatory agency, the changing function of the university in an educational system that is in the process of reorganization. Even the question of the basis on which university members shall be selected and retained, a matter on which the future position of the university in American life depends, is cavalierly disposed of by noting two opposing practices, and dubbing one "aristocratic" and the other "democratic," and God is, of course, on the side of the strongest battalions. These are problems of statesmanship with which university "administrators," absorbed in police duties, and in the manipulation of check lists and blank forms, have no concern.

What the book presents is surely a worm's-eye view of university administration. Perhaps there are institutions of the kind the authors seem to regard as typical, in which the revolutionary movements that have higher education in their grip are not perceptible, and in which administration consists of a neatly co-ordinated set of clerical and regulatory operations. But if this is what administration is to be generally in American universities, Heaven help the universities—and America! The prayer is not superfluous, because the book is partly designed to help prospective administrators prepare for their future responsibilities.

Actually, the authors have overlooked the distinction between administration and executive routine. For the latter, mechanical devices are helpful—and the book is a useful compendium of some of these. Even within their proper sphere, however, these devices must be employed with discretion. Indeed, one of the perennial problems of administration is the problem of determining when and how far they should be used, and to what extent they may be trusted. For administration is polarized toward people, not toward devices. In essence it is the direction of human effort, the co-ordination of the efforts of many human beings toward important ends, the continual adjustment of human beings and human institutions to an unstable environment. It is compounded of judgments and decisions and the taking of positions; the most variable and unchartable of human activities. It may be aided by mechanisms, but, if it ever gives up to mechanisms, it has failed.

The literature of educational administration concerns itself chiefly with the administration of public schools. Unfortunately, much of it makes the same mistake of emphasis as does this volume. There is a certain excuse in the fact that the aspects of organization and the activities of management which can be summarized and tabulated and reduced to rule of thumb procedures are these subordinate aspects and activities which influence and assist, but surely do not control, the grand strategy of administration. It is perhaps not surprising that the authors of this pioneer treatise in the higher educational field should have followed the model that has dominated the writing on educational administration for some twenty years. Nevertheless, it is to be hoped that the new literature of higher educational administration, which may be expected shortly will be more successful in avoiding these errors of perspective.

[1] Flexner, Abraham. *Universities, American, English, German*. New York: Oxford University Press, 1930.

A Great Teacher

Mark Hopkins, by J. H. Denison. New York: Charles Scribner's Sons, 1935. viii + 327 pp. $3.00.

H. A. GARFIELD, Williams College

The author, John Hopkins Denison, grandson of Mark Hopkins, was just finishing his first year at Williams College when his grandfather died. He had lived much of his life in Mark Hopkins' home and therefore writes with keen appreciation of his personality and character. No other biographer has set forth with clearer understanding the intellectual quality of this great teacher.

The biography presents in clear outline the student and the teacher. It tells admirably the story of the long struggle of Mark Hopkins and the sacrifices made by his parents to make possible his college education, the early life on his father's farm, and his experiences as a young doctor in New York.

To the graduate of Williams College much of great interest will be found in the account of college life at the end of the first quarter of the nineteenth century.

As Mr. Denison says, "It is difficult to portray the power of a great teacher," but the author of this biography has succeeded to a remarkable degree. The book is more than a biography. The chapter giving an account of the early days in New England when the Hopkins family were eking out a slender living, making their way in the world, and placing the impress of their characters upon the community in which they lived, presents a vivid picture of a New England village community of the early nineteenth century. It is a pleasing picture. The ceaseless toil of the father of the family on the old farm at Stockbridge, and the character sketches of this New England community, torn by the religious and political controversies of the period, are admirably told.

The picture the author draws of Mark Hopkins' mother enables one to understand some of the finest qualities of Mark Hopkins' mind, qualities that enabled him to bridge the gap between the old and the new theological ideas which stood in the way of progress. As his biographer states in connection with this phase of his life:

> The great work of Mark Hopkins was that he had seen in the old system the elements which were permanent and had thrown all his emphasis upon these. He had opened the minds of the young to the stupendous revelations of modern science and had taught them to adjust their thinking to them. . . . Men were to serve God from love of him; not from terror before his law.

The chapter on religious life in 1825 is particularly well done. The author's training and his experience in the ministry qualified him peculiarly to write of this period. It is sincerely to be regretted that Mr. Denison did not live to hear the full measure of praise accorded to this— his best literary work.

A Twentieth-Century Survey

The Autobiography of Lincoln Steffens. New York: Harcourt, Brace and Company, 1931. 2 Volumes. $7.50.

W. H. COWLEY, Ohio State University

Here is a book that every educator should read. No more lucid and incisive survey of the twentieth-century American scene is known to this reviewer. The author, after a scintillating career as a reformer and idealist, sits down to shepherd his experiences and judgments. He has succeeded in writing one of the most trenchant and provocative biographies that has come from the press in years.

Those who lived through the muckraking decade will recognize Mr. Steffens as the original muckraker. For a half-dozen years he pried into the corruption of our major cities bent upon municipal reform. Abandoning that interest in despair, he expanded into an international freelance correspondent, which brought him into contact with the pre-war struggle of capital and labor, notably exemplified by the California dynamitings, with the Mexican regime of Carranza, with the diplomacy at the end of the war terminating in the treaty of Versailles, with the Russian Revolution and Bolshevism, and finally with Fascism. On the way he joined in with Theodore Roosevelt's trust-busting campaign, the organization of the Progressive party, and the discovery and training of younger men including Walter Lippmann.

Among his associates and intimates Mr. Steffens included Theodore Roosevelt; Woodrow Wilson; Boss Croker; Senator LaFollette; Tom Johnson, liberal Cleveland mayor; Dr. Charles H. Parkhurst, New York vice reformer; Clarence Darrow; and innumerable other important figures in recent American and European history. As perhaps the most successful interviewer that America has yet developed, he interviewed and reports his conversation with Mussolini, Lenin, Kerenski, J. P. Morgan, Judge Gary, and a score of others. He does more than report. He analyzes, criticizes, and weighs. His economic, political, and educational generalizations have not only the breath of active life in them, but the perspicacity of a carefully trained student. Early this year the present work appeared in two volumes priced at $7.50. The demand has grown so large that it has now been republished in a single volume at $3.75. This reviewer has read no book within the past several years which has been more dramatic, illuminating, stirring. Certainly everyone interested in the social and political evolution of American society must of necessity read Mr. Steffens' most dramatic, readable, and significant story of the times.

A Most Significant and Satisfactory Report

The Experimental College, by Alexander Meikeljohn. New York: Harper and Brothers, 1932. xix + 421 pp. $3.50.

C. S. BOUCHER, University of Chicago

This book is the best example of the best of the new literature in the field of higher education that has come to the attention of the reviewer. A few years ago we were deluged with literature that was mainly destructively critical since it was concerned primarily with pointing out the malpractices and deficiencies in our educational process at the college level; at the time that type of literature was sorely needed. Then came a period when we were bombarded by armchair educational philosophers who presented theories galore, occasionally with concrete suggestions for programs they would like to see tried. But most of us have lost patience with destructively critical literature and even with literature that, though constructively critical, deals only with theory, because we realize that, in view of the number of changes, innovations, and experiments in higher education that are now actually being given a trial, the most significant literature now beginning to be published consists of reports of progress and evaluations of techniques, even though tentative.

Tired of being told what is wrong with the college program, tired of being told what someone thinks *ought* to be done, we look eagerly for reports of experiments that are actually in progress. The book in hand is the most significant and most satisfactory report of a major experiment yet made. Other reports perhaps equally significant, though none more satisfactory as reports, may be expected in the field of higher education in the near future.

Only Mr. Meikeljohn could have written such a completely satisfactory account of the Experimental College of the University of Wisconsin, because only he knows so intimately the entire story from the inception of the idea, through the laying of plans, the launching of the experiment in September, 1927, to the completion of this report in 1932; and because no one else could present the story so vividly, so accurately, and so charmingly. The story never lags, because it is excellently organized and brilliantly presented; each section is skillfully compounded of exactly the right amount of theory and philosophy of education, educational objectives aptly stated, the means employed in the attempt to attain the desired objectives, and data for at least tentative judgments. Adequate description, clear-cut exposition, critical analysis, frank and penetrating summaries of gains and losses critically evaluated, with frequent topic sentences that are neatly turned, thought provoking, and striking in phraseology, clarity, and beauty—these are features that, together with the completeness of the picture of the experiment, make the book one that challenges and satisfies. The author has set an excellent pattern for similar reports.

The reviewer cannot close without paying tribute to the author's fairness. His occasional seeming dogmatism does not offend; and even when he deals with experiences that must have been most irritating and even maddening, no bitterness whatever is reflected. The book is the product of a great mind and of a choice spirit.

The Record of a Famous Course

Mind, Self and Society, by George H. Mead. Chicago: University of Chicago Press, 1934. xxxviii + 439 pp. $5.00.

ERNEST C. MOORE, University of California at Los Angeles

In a postscript to a letter to John Dewey in 1903, William James wrote him these comforting words about what he was trying to effect in Chicago: "I see an entirely 'new school of thought' forming and as I believe, a true one." In John Dewey's ecstatic response he told William James: "As for the standpoint—we have all been at work at it for about twelve years. Lloyd and Mead were both at it in Ann Arbor ten years ago."

In 1894 that activity was moved to the University of Chicago. The philosophical company there was made up of John Dewey, James H. Tufts, George H. Mead, A. W. Moore, and James Angell. No one of these worked so closely with Professor Dewey as George Mead did. He gave his whole life to the developing of "the standpoint." His mind was first analytical, then synthetic; his knowledge of science was comprehensive; and his interest was in fitting the world of physical and biological fact, and the expanding developments of human society, into an articulation of meanings.

Professor Mead did not publish much. Some who knew him well said that was for the same reason that Socrates did not publish; that is, he was absorbed in conversation. Others said he had difficulty in written articulation, but that was a fate that fell upon some other pragmatists but which did not keep them from writing. At any rate, when Professor Mead died the students who had sat in his courses brought together their notes of his lectures and from them, this and two other volumes have been prepared.

This is Professor Mead's famous course in "Social Psychology," and it well deserved to be famous, too, for this book, which reproduces it, shows that in it he massed the problems of man's life together and brought to bear upon the solution of them all the vast learning and the analytic acumen which nature and persistent meditation had given him. The results warrant the undertaking. In a day of mediocre thinkers, we are here given a masterpiece. This is a book for prolonged and painstaking study. It must be acknowledged that it is not easy to read. It is highly technical as any markedly thorough study of its difficult subject must be. Its contention is that mind and the self "appear within conduct," that they are generated socially. Supernaturalism which lets them down from above cannot explain them. "The other-wordliness of the reason . . . of ancient philosophy, the other-worldliness of soul . . . of Christian doctrine, and the other-worldliness of the mind of the Renaissance," surround them with mystery and leave them incomprehensible and useless in this human world of change and problems calling for incessant adjustment. Take mind and the self in terms of biologic development—what is the process which brings them into being? No animal but man has made the grade from impulse to rationality. How did man make it, how did man become man? For that is the problem. Biologic individuals are not yet consciously communicating selves. Mind and the self are social emergents. Language is the mechanism for their emergence.

That is undoubtedly true, and it is most acutely analyzed, reasoned, and established in this course. George Mead was perpetually pondering the process of reconstruction. He had mastered its unceasing give and take. When he came to set it forth I think he sometimes made the social process everything and allowed it to swallow up the biologic individuals or human engines that carry it on. The old puzzle—which is first, the individual or society—is not solved by saying that society is first. They are both first. Individuals and nothing but individuals make society, and society and nothing but society makes individuals. Each conditions and constitutes the other. They are as omnipresently together as the two sides of the same shield. The natural history of man must find the mind and the self developing in the process of social give and take, but it is the social give and take of biologic units of the human species, and the full account is of biologic as well as of social psychology.

A Provocative Treatise

Personality, by Gordon W. Allport. New York: Henry Holt and Company, 1937. xiv + 588 pp. $3.50.

DONALD G. PATERSON, University of Minnesota

Allport's *Personality* is a scholarly, comprehensive, challenging, and provocative treatise on a topic that is everywhere receiving most earnest consideration. It is safe to say that it will rank high among psychological contributions from the point of view of its influence in psychological circles and even more so among educators and personnel workers. Space limitations preclude adequate review and criticism so we must content ourselves with a mere glimpse of its purpose, scope, and implications.

The book consists of five parts subdivided into twenty chapters. The first part devotes one hundred pages to the task of making a case for the scientific study of the individual in contrast to mind-in-general, to the recording of fifty definitions of personality that have come down to us through the ages (Number 50 is Mr. Allport's definition), and to a history of characterology. In passing, it may be said that Allport's definition of *personality* turns out to be a definition of *individuality*, a distinction which, if it had been made and consistently adopted, would have clarified the treatment for the reader. Part II deals with the general principles underlying the development of personality. Part III on the structure of personality may well be said to be the heart of the book. Here he competently discusses and rejects the theory of identical elements in the problem of transfer and develops his theory of traits. The crux of his thesis is that there are two kinds of traits for the understanding of personality, individual traits and common traits. Allport seizes every opportunity to minimize the significance of common traits (those possessed to varying degrees by all of us) and to extol the virtues of individual traits (those which exist on an all-or-none basis and which truly set each of us off from the other, thus giving us uniqueness). Part IV describes 52 methods of personality analysis. Separate chapters are devoted to psychographic methods based upon common traits, analysis by ratings, tests, and experiments, and the methods of expressive movements. Part V discusses understanding personality by considering the ability to judge people, the rôle of inference and intuition, and a final résumé of the person in psychology.

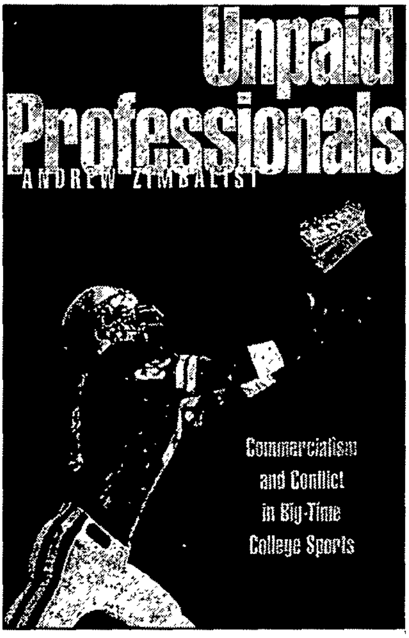
What is new in this book? What is worth while? These two questions cannot be answered in brief fashion with full justice to Allport's position. To the reviewer it seems that Allport has made a distinct contribution in his emphasis on the uniqueness of the individual and that this uniqueness has too long been neglected by orthodox psychology as a legitimate object of scientific study. His emphasis on the clinical approach utilizing the case history method, hitherto developed most extensively by applied sociology and medicine, deserves commendation. The historical treatment of the subject and the comprehensive summary of available methods of personality analysis likewise rank high in utility. Allport's insistence that the unique characteristics of a given individual can only be revealed by utilizing individual traits and by virtually rejecting common traits may be said to be the high point of the book. The frank admittance of *intuition* as a scientific method into the study of personality will likewise lead the mystics to rejoice.

To the reviewer there are many things to deplore. Allport's diatribes against habit as a dynamic factor in personality, his constant minimization of the importance of statistics, factor analysis, and measurement scales, and his rejection of or at least belittling of the achievements of differential psychology seem uncalled for and, what is more important, are likely to block progress in the vigorous developments now actually under way. For example, Ruth Strang in her recent personnel book entitled *Behavior and Background of Students in College and Secondary School* states on page 223,

> The makers of tests have, in general, failed to use the knowledge which we already have. They have failed to distinguish between what Allport and Odbert have called universal and particular traits. The universal traits are the only ones that can be measured; the particular traits are the most important for personality. Accordingly, the test makers are measuring irrelevancies in most cases.

While no one can quarrel with his definition of *intuition* yet it is most unfortunate that this word with all of its mystical connotations should be resurrected and reintroduced into psychology. It is unfortunate that he did not use some such term as "clinical synthesis" or "clinical judgment" instead of intuition to cover the need that exists for "sizing up the total personality" from all the available evidence that can be gathered by a variety of personality-analysis methods. Finally, the central thesis of the book, namely, the overwhelming importance of individual traits in contrast to common traits in the delineation of individuality, seems to be suspended in mid-air without any substantial foundation of fact. The reviewer was eager to note just what these individual traits looked like and was considerably disappointed to discover that the illustrations used by Allport were all in the nature of extreme statements of characteristics that exist in *degree* and hence are, in reality, common traits.

As said before, the emphasis on the unique characteristics of the individual (patterning of traits as found in the individual by psychographic methods, case history notes, and the like) is a most wholesome emphasis. But it is an emphasis that is far from novel. Differential psychology has been struggling with this problem for years and as long ago as 1911 Thorndike in a book entitled *Individuality*, clearly showed that the use of measurement scales for common traits was entirely adequate to account for the fact of individuality and uniqueness. No reference to this brief but significant contribution is to be found in Allport's book. Furthermore, at the very moment Allport's book is published we find Richard G. Sagebeer describing a machine for pattern analysis whereby deviations in a number of common traits may be weighted and summed to provide a quantitative index of "uniqueness of pattern." In short, the reviewer would insist that the objective measurement approach inaugurated by Cattell and Thorndike is still in its infancy and those interested in understanding the individual have more to gain by forging ahead along these lines than by becoming lost in a maze of trait names, intuition, and clinical judgments unsupported by available measurements of common traits.



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John G. Francis
Mark C. Hampton

Resourceful Responses

The Adaptive Research University and the Drive to Market

A major challenge for contemporary public research universities is the need to affirm to the public and to the political community that the quality of higher education found at these largely autonomous institutions is of such import that it should be sustained by both public and private support. This challenge is made all the more difficult by the growing reluctance expressed by both state and federal policymakers to fund the university's educational mission at anywhere near the level university officials feel is required to sustain that mission. A further complication is the perception within a growing number of politically influential groups that research universities have largely eluded the beneficial effects of market-driven efficiency.

Our objective in this article is to examine how research universities are responding to this complex challenge in the connection between revenue generation and budgetary expenditure in a market-driven age. We argue that the response might involve a recognition that American research universities have a long record of institutional adaptation (Graham & Diamond, 1997). We examine funding and expenditure patterns during this decade and conclude that there is support for the argument that universities are adapting to the current climate by incorporating market-like behavior into their business plans. Specifically, we find noteworthy differences in behavior between institutions which experience enrollment declines and those that do not, and we find a strong relationship between increased reliance on particular sources of revenues

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and expenditures on student services, findings that seem to indicate market-like responses of public research universities to changing conditions.

Historical Context

American universities are distinguished by their relative autonomy as state institutions. Students of the American state formation draw attention to the strong tradition of locality and a corresponding skepticism of national institutions (Skowronek, 1982; Skocpol, 1995). In such a political culture, state universities have largely escaped the sort of control exercised by European ministries of education; indeed, the control exercised by subnational education departments as well. The great number of American state and private universities engendered fairly early on a competition for students and faculty and the expectation that universities could have a good deal of latitude in that competition. Of course, as we know, universities as autonomous institutions are complicated by their own internal organization as collections of semi-autonomous units. This strong tradition of decentralization within the state university may contribute to the capacity to innovate at the margins without appearing to deviate from traditional conceptions of what a university should be (Tierney, 1998).

In the current debate over the public research university, commentators are often too willing to use images from fashionable films, to describe universities metaphorically as great ships speeding along on a predetermined course, ships of such size that even when they see the iceberg of public discontent they are unable to avoid the crash in time. The reality is often that a public research university is more like a flotilla of ships of quite diverse size and function that, when taken as whole, might be more profitably understood as a fleet quite capable of engendering radical shifts in direction at the margin that allow steady adjustment at the center. It can be argued that American public research universities have in large measure prospered by adopting a strategy that embodies a potent, almost paradoxical, combination of continuity and radical change at the same time.

This has certainly been the case over the last half of this century. Indeed, public research universities are remarkably evolving blends of public and private initiatives. It is not surprising that these universities that are often regarded as agents of social and economic change, themselves, undergo change. In the decades since the end of the Second World War, American research universities have experienced dramatic changes in enrollment, research, and funding. These shifts are in part, of course, the result of changing societal expectations, but they can also be explained as the result of the initiatives undertaken by the universities themselves. Public research universities have sought to position themselves to benefit from changing societal expectations and have in the process redefined the mission of higher education (Graham & Diamond, 1997).

Contemporary public research universities have undertaken a number of endeavors in the last fifty years. Three major endeavors stand out as demonstrating how universities have adapted to changing times and have helped to shape the direction that social and economic change has taken between the late 1940s and the 1980s: first, as institutions that educated an ever expanding middle class; second, as institutions that became the center for large-scale capital investment in research for industry, scientific inquiry, health care, and defense, among other areas; and finally as institutions that sought out students from communities in American society that had not previously attended college. In other words, universities moved to embrace the demographic diversity of American society and the drive to maintain the United States' central role in the world economy and in international security (see Sutton, 1994; Graham & Diamond, 1997).

The distinctive nature of American public research universities in each of these three transformations should not be underestimated. For example, the close association between research and the state university is not found to anywhere near the same extent in Europe or Asia (Graham & Diamond, 1997). The commitment to mass education at the university level came much later in Europe. That the scope of activities and roles taken by American universities is different than elsewhere in the world is useful in understanding the interplay between universities and the changing American society.

An illustration of the American research university's capacity not only to respond but to consolidate its role as an agent of change is the rise of the land-grant university. Over time, the university as an agent of agricultural improvement became transformed into the university as agent of economic and social change. From the Morrill Act to the GI Bill to the legislation of the Great Society era, it is clear that the public and policy makers alike have regarded higher education as an agent of change. Equally clear is the active engagement of research universities in adapting to changing conditions.

Market Appeal

It is this record of institutional adaptation that is prologue to our discussion of the challenges that have confronted the public research universities during the past decade. Beginning in the 1980s and continuing into this decade, three growing concerns have emerged in higher education debates over the future direction of the university. This debate has been particularly intense in public research universities. The three specific issues that are being debated are: first, whether or not levels of federal research funding can be sustained; and second, whether or not enrollment in public research universities will be sustained or experience a decline; and finally, what the prospects for and the nature of state funding are in an era of tax cutting and competing demands for tax dollars (Graham & Diamond, 1997). These concerns, of course, have substantive implications for the future of universities as we have come to know them.

What has made this debate so interesting is that these concerns have arisen in an age that celebrates the market and is correspondingly skeptical of the state sector. A good deal of recent public policy debate in this country and abroad has called into question the nature and extent of state provision of a wide range of social and economic services. Historically, universities have come to see themselves as apart from society. Universities have long regarded themselves as unique centers for the generation and transmission of knowledge. Higher education has been traditionally seen as calling students to the universities and then sending them out to join the company of educated men and women.

In the past few decades, there has been a much greater willingness to draw parallels between universities and organizations found in the private sector. In 1974 Leslie and Johnson identified trends that marked a shift toward market-like behavior in higher education financing, but concluded that "the competitive market model is inadequate and inappropriate as a policy basis for higher education" (p. 78). Despite this admonition, the discussion of higher education as a market has continued to the point that it has become an unquestioned assumption in many discussions, especially among policymakers.

The growing fascination with market models in resource allocation in American higher education contributes to new ways of describing what it is that universities do, for example, by describing students as consumers and a student's education as a product (Chaffee, 1998). The use of such market imagery is appealing to some within universities and indicates the direction they feel higher education should be taking, but it is also deeply resisted by others, both on and off the campus. Critics of market approaches, especially for public research universities, argue that the quality of education is compromised by such strategies because they undermine the professional authority of the faculty and generate confused expectations for students as they attempt to understand what an education is meant to be. Perhaps more to the point is the fear that placing the research university in the market place compromises institutional autonomy and academic freedom as it erodes the understanding of a university as independent and capable of observing the marketplace simply because it is not of it. Thus, the question most central to our analysis is how best to maintain the institutional autonomy of the public research university in an environment that increasingly allocates resources through market-like mechanisms.

The debate over the value of market strategies in the realization of the university mission should be understood, in part, as the most recent stage in the recurring debate over the how best to maintain institutional autonomy. It seems clear to us that the adaptability demonstrated by research universities over the course of this century has been driven by the commitment to sustaining autonomy within research universities. In other words, a commitment to autonomy contributes to a willingness to adjust not only to changing times, but also to help shape the conditions that can strengthen the position in society given to research universities.

Institutional Adaptability

We argue that debates about the nature and future of higher education are often confused by failing to recognize the inventive adaptability of research universities while preserving and enlarging their traditional mission. American public research universities have demonstrated remarkable adaptive powers over the past fifty years at least. They are *sui generis* institutions, being neither fully private nor public institutions. The semiprivate, semistate set of institutional arrangements is not the only organizational distinctiveness associated with higher education.

If one looks within the university, it is clear that specific units have long adapted to market-like behavior (Slaughter & Leslie, 1997; Tierney, 1998). Examples of this type of behavior include the competition for research funds and the spinoff of semiprivate research firms, the provision of financial aid and the competition for grants and contracts (Slaughter & Leslie, 1997), and student recruitment moving from a brisk four-year experience for eighteen-year-olds to life-long learning for professionals and the middle-aged. Such endeavors often operate in conjunction with other traditional sectors of the university and have had the consequence of weaving higher education into the fabric of American society at a greater depth than was the case even fifteen years ago.

When institutions of higher education engage in market-like behavior, the consequences of such behavior may or may not be beneficial. Privatization in Europe has shown that increasingly market-like behavior brings with it the specter of greater regulatory intervention. Those familiar with American higher education are well aware that market-driven behavior exposes institutions to politically contested issues such as the rules of competition and fair practice. The discussion of the appropriateness of market-behavior in higher education is an important one; however, we limit our current discussion to an examination of the institutional adaptation in an age of markets rather than the merits and hazards of the marketplace per se.

Public and Private Support of Public Research Universities

Nowhere is the ever evolving complexity of the contemporary state university more clearly apparent than in its sources of income and its pattern of expenditure. Traditionally, state universities have received the bulk of their funding from the states. However, the federal government has been deeply implicated as a source of revenue in land-grant universities right from the beginning. It is clear today that the budgetary texture of universities is complex and reinforces the concept of the state university as a public/private hybrid. The fact that an eightfold differentiation of income streams into the state university is required for federal reporting is incontrovertible evidence of this complexity. Rather that simply "public" or "private," revenue is classified as coming from state appropriations, tuition and fees, government grants and contracts, private grants and contracts, investment and endowment income, educational sales and services, auxiliaries and service units, and where applicable, hospitals.

State universities may have diversified their income streams over the last fifty years (Brinkman & Morgan, 1994) but it is, of course, misleading to conclude that state appropriations have diminished in importance. Much of the income derived from research related endeavors is restricted in use to specific research activities. The majority of a public research university's budget typically cannot be used for the instructional mission of the university, and none of it can be used more flexibly than the portion made up from tuition, fees, and state revenues.

However flexibly they may be used, these important sources of revenues do come with certain concerns. An oft-quoted view in higher education is that students and their families should assume approximately one third of the cost of their education but that tuition rates should be set much higher than this and that student aid be used to offset the difference (Carnegie Commission, 1973). Acting on this recommendation, federal and state governments in effect created the market-like conditions that higher education now faces with little thought to the consequences of these conditions (Leslie & Johnson, 1974; Leslie & Slaughter, 1997). Admittedly, these conditions are made all the more complex by the demands to expand educational opportunity to the least well off, the unstable nature of federal student aid, and the resistance of state agencies to sustain funding ratios between the student share and the state's share of the student's education (Hearn & Longanecker, 1985).

Clearly, the last two decades have seen an increasing willingness of government to rely on students to shoulder more of the burden of financing higher education (Hossler, Lund, Ramin, Westfall, & Irish, 1997). In its 1995 publication *The Condition of Education 1995*, the Education Department discussed the implications of this by noting the following:

- With the exception of public 2-year colleges, revenue per full-time equivalent (FTE) student in constant dollars increased at all types of higher education institutions between 1980 and 1992.
- However, while the revenue per FTE student increased, government appropriations fell (both in constant dollars and as a percentage of total revenue) at all types of institutions.
- For public institutions, which rely heavily on government appropriations, this fall was particularly large between 1990 and 1992.
- Even with significant increases in tuition revenue per FTE student, total revenue fell or remained steady over this period (Smith, 1995).

Though there are indications that the situation has improved somewhat since 1995 (Schmidt, 1997), it has been in this cold climate of decreasing government support that many universities have reluctantly moved to shift a greater share of the cost of education to students and their families as well as to intensify efforts among alumni and friends of the university to help defray the cost of education. In this search for revenue it is quite apparent that state policymakers are increasingly interested in how education takes place, to measure its effects on the students, and to seek to reduce costs by demanding accountability and efficiency. In other words, not only has the university sought to enlarge nonstate sources of revenue, but it has also been forced to react to demands from those in state government in order to hold on to existing state generated income. It has done so by arguing that the public research university not only provides an education of high quality but is the best judge of determining what constitutes a quality education (Chaffee, 1998).

In the last decade research universities both public and private have undertaken a number of initiatives aimed at improving both the quality and efficacy of undergraduate education. In many cases research universities have taken the lead in undergraduate educational change, and in other cases they have adopted programs often associated with smaller colleges. Perhaps one of the most widely accepted of these initiatives is first-year programs designed to introduce the new student to a university education by linking library technologies, student affairs, learning skill programs in cohort programs that promote learning communities (Boyer Commission, 1998).

Other new initiatives focus on the efficient delivery of education and its consequences for the student. New technologies have been adopted in academic advising that assure that all students receive appropriate and timely advising and that allow students to track their academic progress on demand. Universities have also undertaken initiatives to review regularly and extend articulation agreements throughout a higher educational system or geographical region, and students can, as a result, transfer with greater ease from a community college or small liberal arts college to a research university. Assessment programs have been adopted by a large number of universities, many of which go so far as to track students and the skills and competencies they have mastered.

Taken as a whole these new initiatives respond to what universities believe that students want and suggest a new recognition of the students and their preferences at research universities. Although one might argue that such behavior is not necessarily market-like, we contend that it does in fact provide evidence of how public research universities have adapted their programs and services to be more appealing to students in an effort to be more competitive. That the rewards of such behavior include the enhancement of a university's revenues certainly allows us to characterize universities as engaging in market-like adaptation.

Quantifying Market-Like Behavior

To illuminate this discussion of how public research universities have adapted to changing conditions, we have chosen to analyze quantitatively market-like behaviors, specifically those that treat students as consumers of higher education. To this end, we have chosen to analyze data regarding enrollments, revenues, and expenditures from these institutions. The best source for this type of data is the Integrated Postsecondary Data System (IPEDS) of annual surveys, currently required of all institutions eligible for funding under Title IV of the Higher Education Act Amendment of 1987. Responding annually to a battery of surveys, these institutions provide information about institutional characteristics, headcount and FTE enrollments, revenues by source, and expenditures by function, among other things. These data have been collected since 1987.[1] IPEDS surveys employ standardized definitions that ensure a considerable amount of consistency in the responses over time and between different institutions. As a result, these data are frequently used to understand trends in higher education and can be used to study behavior among colleges and universities, at least to the degree that "behavior" is accurately reflected in responses to questions about things like revenues and expenses.

In our analysis, we considered the population of American public universities classified as "Research University I" by the Carnegie Commission. IPEDS data are available for all but a few of these institutions. We note that this choice of the type of institution is interesting even beyond the scope of our previous discussion of institutional adaptability: Operating at one end of the continua for both size and diversity of mission, these institutions exhibit commonalities not found in any other Carnegie classification. Furthermore, these institutions are often characterized as being unwilling to change (Brooks, 1994), even though they are at the same time considered agents of change. Keeping these changing conditions in mind, we chose to focus on the recent past and, realizing the complexity of analysis necessary to interpret changes occurring over long periods of time, limited our analysis to changes seen over a recent and relatively stable period of time.

If, as we have discussed, public research universities have actually adapted to changing conditions by adopting more market-like behaviors, items of interest would include the changing conditions these institutions have faced and the kinds of behaviors they have adopted to deal with them. Many of these changing conditions are not directly reflected in IPEDS data (e.g., changes in public opinion, political aspects of state budgets, expectation of accountability, and increased efficiency). These data do, however, allow one to note changes in many other areas: enrollment, tuition and fees, revenues from private sources, expenses on student services, etc. It is important to realize the limited understanding of behavior that actually comes from such data and to caution that any results should be taken as preliminary evidence of certain behaviors, evidence that is best corroborated with further studies of this nature and with analysis of more direct measures of behavior.

In our analysis, we chose to focus on the contextualized relationship between expenditures on a wide range of student services and the percentages of revenues received from the state and from a combination of tuition, fees, and private sources. We contend that studying the expenditures on student services is a useful way to gauge the degree to which public universities increase the value of their offerings to their students (see Chaffee, 1998). Admittedly, a university could increase this value in any of a number of ways, but expenditures on student services, defined by IPEDS as being "funds expended for admissions, registrar activities, and activities whose primary purpose is to contribute to students' emotional and physical well-being and to their intellectual, cultural and social development outside the context of the formal instructional program" (IPEDS, 1994), are expenditures that are made specifically on items that benefit students. This category of expenditures typically includes recruitment and orientation expenses and is therefore an even better measure of the degree to which public universities are engaging in market-like behaviors with regard to students.

The choice to combine tuition and fees and private gifts is prompted by our discussion and by a simple analysis of the level of control a public university has over particular revenue streams. Though not all public universities can set tuition, most have some flexibility over student fees and use tuition and fees as one way to make up for shortcomings in state appropriations. Private gifts, on the other hand, are negotiated, and might even be thought of a representing the most entrepreneurial kind of behavior in which public research universities will engage. Furthermore, many public research universities seek out private gifts in order to enhance undergraduate education. Combined, these two revenues create a useful conceptual understanding of the income public research universities are willing to ask from their various nongovernmental constituents or consumers.

To ensure a greater consistency among institutions, revenues and expenditures related to hospitals were removed before calculating percentages. In order to control for possible economies of scale related to enrollment and differences by level of study, factors such as size of institution and focus on undergraduate programs were considered by including total headcount enrollment and percentage of total headcount enrollment due to undergraduates.

Because the objective of this article is to describe how higher education has adapted to changing conditions, our analysis focuses on the changing behavior, as evidenced in changes in expenditures as well as changes in dependence on certain revenues and how they relate to changing conditions. We specifically considered the relationship between changing conditions and behavior over the period between the 1989-90 and 1994-95 fiscal years. This period was chosen for a number of reasons. The endpoint is consistent with the first analysis and represents the most recent data available. Furthermore, the span of time is neither too short to reflect changes in behavior nor too long to be encompassing too many changing social conditions. Finally, it represents a time in which the fortunes of public research universities changed dramatically in some ways while staying very much the same in others. During this time state revenues as a proportion of overall revenues fell substantially (from 39% in 1989–90 to 32% in 1994–95 for the 55 public RUIs in our sample). At the same time, enrollments in these institutions increased on average for the first few years of this period, but then fell. By the 1994-95 fiscal year, total headcount enrollments at the public RUIs in our sample were on average only 57 students less than in 1989-90. Furthermore, the percentage of total nonhospital expenditures spent on research-related activities remained flat during these years: In both years, these universities dedicated an average of 20% of their total nonhospital expenditures to research with no institution increasing the level of this category of expenditures more than 5%.

In order to reflect changes over time, differences between percentages in the 1989–90 and 1994–95 fiscal years were calculated for the revenue and expenditure variables by simply subtracting the 1989–90 value from the 1994–95 value. This measure of change in the percentage of total expenditures for student services was seen to be the outcome variable, while changes in the percentage of total revenues from state appropriation and changes in the percentage of total revenues from tuition, fees, and private gifts were taken as explanatory variables.

Our model tried to reflect the fact that changes in percentages have different meanings based on the starting value of those percentages. For example, a 10% difference in a revenue source as a percentage of total revenues means something very different to an institution that had originally only received 10% of their revenues from that source than it would to an institutions that had originally received 50%. For this reason, values for the 1989–90 fiscal year for percentage of total revenues from state appropriations and from tuition and fees and private sources, and percentage of total expenditures for student services were included, in order to contextualize changes in these variables over time.

In developing our analytical model, the change in total headcount was initially considered as an explanatory variable, but was later used to divide our sample into two groups: institutions that had experienced a decline in enrollment ($n = 25$) and those that had not ($n = 30$). Though it could be argued that this variable should have been included directly in the model as a dummy variable, our particular use of this variable is well supported by our central argument. In short, changing conditions elicit changes in behavior, and the best way to study those changes is by studying groups affected by similar conditions.[2]

Based on the reasoning outlined above, the model used in our analysis was as follows:

Change in the percent of expenditures on student services =
$\beta_0 + \beta_1$ Percent of revenue from state appropriations in 1990
$+ \beta_2$ Percent of revenue from tuition and private sources in 1990
$+ \beta_3$ Percent of total expenditures expended for student services, 1990

$+ \beta_4$ Change in the percent of revenue from state appropriations
$+ \beta_5$ Change in the percent of revenue from tuition, fees, and private sources.
$+ \varepsilon$

This model was used to test the main hypothesis that *an increased reliance on tuition and fees and revenues from private sources would be positively related to an increased percentage of total expenditures that is expended on student services*, by observing the sign and significance of the estimate of β_5. The model was run for the overall data set and separately for the institutions experiencing a decline in headcount enrollment and those that did not. While not directly testable by this model, we also propose the following secondary hypothesis, namely, that *a decline in enrollment will significantly affect the change in the percentage of total expenditures expended on student services.*

Results

The statistics in Table 1 summarize the statistics relating to the significance of these three analyses and indicate that our model is significant for all values of α larger than 1% not only for the overall data set, but for the two groups identified. Furthermore, the model does a very good job of explaining the variability in the change in percentage of total expenditures expended on students services, especially among the institutions that experienced enrollment declines: In this data set, the model explains a little more than two-thirds of the variance.

Of greater interest, perhaps, are the estimates of the model parameters obtained by these analyses. These are summarized in Tables 2, 3, and 4 and indicate that our main hypothesis is not rejected for the overall data set nor is it rejected for the data set of institutions with enrollment declines (for all values of $\alpha > 1.5\%$ and 0.15%, respectively). However, it is rejected for the data set of institutions without enrollment declines for all reasonable values of α. We contend that this difference indicates the effect of changing enrollments on the behavior of institutions, and

TABLE 1
Significance of regression analyses of behavior over time within institutions

Data Set (n)	F (p-value)	R^2
All institutions (55)	4.7064 (0.0014)	0.3244
Institutions with enrollment decline (25)	7.7663 (0.0004)	0.6715
Institutions without enrollment decline (30)	4.0475 (0.0083)	0.4575

TABLE 2

Summary of results in regression analysis of behavior over time within all institutions ($n = 55$)

Term	Estimate of β_i	P-Value
Constant	0.0038	0.5941
Percent of revenue from state appropriations,1990	0.0011	0.9324
Percent of revenue from tuition and private sources, 1990	0.0020	0.9014
Percent of total expenditures expended for student services, 1990	–0.2614	0.0003
Change in the percent of revenue from state appropriations, 1990 to 1995	–0.0035	0.8734
Change in the percent of revenue from tuition, fees and private sources, 1990 to 1995	0.0700	0.0119

TABLE 3

Summary of results in regression analysis of behavior over time within institutions experiencing an enrollment decline ($n = 25$)

Term	Estimate of β_i	P-Value
Constant	0.0027	0.8235
Percent of revenue from state appropriations,1990	–0.0267	0.3220
Percent of revenue from tuition and private sources, 1990	0.05524	0.0394
Percent of total expenditures expended for student services, 1990	–0.4792	0.0022
Change in the percent of revenue from state appropriations, 1990 to 1995	–0.0176	0.6269
Change in the percent of revenue from tuition, fees and private sources, 1990 to 1995	0.1828	0.0012

TABLE 4

Summary of results in regression analysis of behavior over time within institutions maintaining or increasing enrollment ($n = 30$)

Term	Estimate of β_i	P-Value
Constant	–0.0051	0.4094
Percent of revenue from state appropriations,1990	0.0240	0.0257
Percent of revenue from tuition and private sources, 1990	0.0048	0.7351
Percent of total expenditures expended for student services, 1990	–0.0942	0.0438
Change in the percent of revenue from state appropriations, 1990 to 1995	0.0430	0.0213
Change in the percent of revenue from tuition, fees and private sources, 1990 to 1995	0.0084	0.6981

though it does not allow us to accept our secondary hypothesis outright, it at least vindicates our decision to divide the data set as we did.[3]

It is important to understand the differences between the analyses of the two groups of institutions. In the group that experienced an enrollment decline (see Table 3), the coefficients that are significantly different than zero are those associated with the change in the percentage of total revenues from tuition and fees and private sources, the percentage of total expenditures expended on student services in 1989–90, and the percentage of total revenues from tuition and fees and private sources in 1989–90. The positive sign on the change in tuition/fees/private sources variable as well as on the 1989–90 tuition/fees/private sources variables seems to indicate that the reliance on this kind of revenue, both past and as changed over time, is positively related to greater expenditures on student services, at least among the institutions with declining enrollments. This result is consistent with our discussion of the willingness of institutions to change their behavior to meet changing conditions. As institutions are compelled to fund a greater share of the cost of education from nongovernment sources, they are also willing to expend more on one of those sources, namely, students.

In the analysis of the groups of institutions (see Table 4) which did not experience a decline in enrollments, the role of state revenues and the revenues from tuition and fees and private sources are exactly reversed. Indeed, even the signs on the coefficients for state revenues mirror those of tuition/fees/private sources in the other group. Again, although our main hypothesis is not supported by this group, this result is perfectly consistent with our primary argument. What is more, our analysis demonstrates another kind of market-like behavior: institutions that are at least maintaining their enrollments seem to react more to the "market" of state support. Increased dependence on this source of revenue is met with increased expenditures for students services, perhaps indicating institutional response to changing demands from legislators and the public for better student services.

These results must be accompanied by a number of caveats. First, revenue and expenditure data are imperfect indicators of conditions and behavior. It should be apparent that our analyses do provide evidence of a relationships between shifts in sources of revenues and areas of expense and perhaps provide one indication of what should be regarded as a broad comprehensive strategy of response to the challenges facing the state university at the end of the century.

Second, before simply concluding that these findings immediately support our hypothesis, it is important to consider artifactual or spurious effects that might explain our results. The kinds of variables we have used in our model are particularly prone to misinterpretation if they are not understood contextually. For example, a dramatic increase in revenues related to research would bring with it a dramatic increase in expenditures on research. *Ceteris paribus*, this would cause the percentages associated with all other categories of revenue and expense to decrease. However, we have shown that, on average, research expenditures did not change over the period of time we studied, and that no institution experienced a dramatic increase in the percent of total expenditures expended for research activities. We therefore contend that our analysis is reasonably free of such problems and that the significant results we obtained are not due to structural artifacts.

Although we acknowledge that it is possible to incorrectly infer "cause-and-effect" relationships within our data, we believe that the consistency of the results obtained in our three separate analyses with what is considered reasonable economic behavior lends immense credence to our interpretation of these results.[4] Furthermore, we think that our interpretations are well grounded in the history and literature of higher education (Halstead, 1991).

Conclusion

Some argue that at the core of the American public research university's autonomy and growth has been its institutional adaptation to changing conditions. Indeed, public research universities have not just adapted but have served as a source of change in their capacity to define and realize their academic mission.

In this era of markets that celebrates competition, public research universities are clearly expected to adapt, and we have argued that this adaptation is taking place. Public research universities appear to have emphasized the place of the student in the rich environment that has come to characterize the modern public research universities.

The very process of market adaptation may enable research universities to seek out new opportunities for growth and contribute to the reaffirmation of institutional autonomy as they adapt their mission to changing conditions. For some, the pursuit of students as consumers by research universities is unsettling and a repudiation of the historic mission of these institutions. This lively new focus on students is reflective of the willingness to adapt that has long characterized American public research universities and has so frequently contributed to their success in changing times.

Notes

[1] Similar but less comprehensive data (HEGIS) are available for the years 1965–1986.

[2] The effect of a decline in enrollment could have been tested statistically by including a dummy variable and interacting it with the other independent variables. This would have measured the effect of decreased enrollment on behavior in both the intercept term and on the slopes associated with the various independent variables, but would have been substantially more difficult to interpret. This model was, in fact, tested and was found to be significant with an *F*-value of 6.7810 and *p*-value of 0.0000. For brevity, the

more complicated model and the estimates of its parameters are not presented here, but are discussed in footnotes when appropriate.

[3] It should be noted that this result was supported by the analysis of the model discussed in the last footnote. In this model, the effect of the enrollment decline dummy variable was significant with respect to its interaction with the change in tuition/fees/private sources variable, the 1990 student services expenditure variable, and the 1990 state appropriation variable, at all values of $\alpha > 0.1\%$, 0.5%, and 5%, respectively. These results permit us to accept our secondary hypothesis on more statistically rigorous evidence than the observed differences between the analyses of the two groups of data. Furthermore, all interpretations of significance and parameter estimates made from the results of the analyses of the two groups of data are consistent with those that can be made from this model.

[4] We argue that alternative explanations of these results can be dismissed, given recent conditions, and can be logically refuted, given the differences in behavior between institutions that experienced enrollment declines and those that did not. Specifically, although we cannot directly refute that increasing the percentage of total expenditures expended on student services would cause research universities to raise tuition, it seems to us preposterous that these institutions would willingly do so during a time when they were being harshly criticized for high tuition rates. Even is this were true, it would be illogical for institutions that had consistent or increasing demand not to engage in this kind of behavior, even though it would be rational behavior from an economic standpoint, even as those institutions for which such behavior would be economically irrational were in fact engaging in it. Based on this, we contend that alternative interpretations would be both inconsistent with recent history and economically unfeasible.

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Major Field and Person-Environment Fit

Using Holland's Theory to Study Change and Stability of College Students

Academic departments have long been regarded as an important influence on the development of college students' abilities and interests (Gamson, 1966; Vreeland & Bidwell, 1966). A comparison of two comprehensive reviews of the research literature by Feldman and Newcomb (1969) and Pascarella and Terenzini (1991) reveals, however, that research examining the extent to which academic departments contribute to change and stability in student abilities and interests appears to have waned. Furthermore, the authors of the two literature reviews reached dramatically different conclusions on the relative influence of academic departments in shaping students' abilities and interests. For example, Feldman and Newcomb (1969) concluded that the "evidence is clear . . . that differential experiences in the several major fields do have impacts beyond those attributable to initial selection into those fields" (p. 193), whereas Pascarella and Terenzini (1991) concluded that there is "little consistent evidence that one's major has more than a trivial net impact on one's general level of intellectual or cognitive outcomes" (p. 614).

An earlier version of this article was presented at the annual meeting of the American Educational Research Association, San Diego, April 1998. The analysis in this article has been incorporated into a larger study by the authors on the utility and applicability of Holland's theory for the study of college faculty and students. This larger study is to be published as a research monograph by Vanderbilt University Press under the tentative title, *Academic Disciplines: Holland's Theory and the Study of College Students and Faculty* (Smart, Feldman, & Ethington, forthcoming). The authors wish to thank John L. Holland for his advice and support. We also appreciate the comments of two anonymous reviewers.

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The decrease in attention paid to the impact of major fields on students conceivably may be a result of the fact that academic departments are not a component in most of the theoretical models that have been the basis for most studies of college effects on students over the past two decades (see, for example, Bean, 1985; Pascarella, 1985; Tinto, 1975, 1987, 1993; for an exception, see Weidman, 1989). The ostensive decline in the influence of academic departments and major fields on students' abilities and interests may be less a fact of reality and more an artifact of certain methodological decisions of researchers as well as their failure to classify departments in theoretically meaningful and empirically defensible ways in their efforts to understand differential patterns of change and stability of students in disparate academic departments. (For a discussion of these matters, see Chapter 1 of Smart, Feldman & Ethington, forthcoming.)

In the present study, we wanted to test further the assumption of Holland's (1966, 1973, 1985a, 1997) theory of personality types and environments that achievement of people is a function of the congruence or "fit" between their personality type and their environment. The theory assumes that (a) most *people* can be classified as one of six personality types (Realistic, Investigative, Artistic, Social, Enterprising, Conventional) based on their distinctive patterns of abilities, attitudes, and interests, and (b) there are six analogous or commensurate model *environments* that reflect the prevailing physical and social settings in society, with each environment hypothesized to attract and to be dominated by its associated personality type. When this general proposition is applied to college students and academic majors, we would expect, for example, that Investigative major fields or departments attract and are dominated by Investigative personality types, while Enterprising major fields or departments attract and reflect the characteristic abilities, attitudes, and interests of Enterprising types. Holland's theory further assumes that each personality type is most likely to flourish in a corresponding environment (that is, the environment having the same label), because this environment provides opportunities, activities, tasks, and roles congruent with the competencies, interests, and self-perceptions of its parallel personality type. Specifically, it is assumed—other things being equal—that *congruence of person and environment* is related to higher levels of educational stability, satisfaction, and achievement. Contrariwise, incongruence of person and environment assumedly leads to lower levels of educational stability, satisfaction, and achievement.

We used Holland's theory for our study because of its proven usefulness in explaining and understanding differences in students' choice of, stability in, satisfaction with, and achievement in various environments generally and in academic environments specifically. In addition to the reviews of the research evidence regarding the validity of the congruence assumption by Holland himself (1985a; 1997), at least five other comprehensive reviews of the literature have been done (Assouline & Meier, 1987; Spokane, 1985; 1996; Tranberg, Slane, & Ekeberg, 1993; Walsh & Holland, 1992). In general, these reviews provide consistent positive, though often weak, findings suggesting that congruence is associated with educational and vocational stability, satisfaction, and adjustment. For example, Spokane (1985) reported a pattern of consistent but moderate positive relationships between congruence and satisfaction in his meta-analytic study; the correlations ranged from 0.15 to 0.54. In the present study, we pay primary attention to research on college students and employed college graduates because of our focus on the applicability of Holland's theory in higher education settings.

Substantially less research has been done on whether person-environment congruence is positively related to educational and vocational success (performance, achievement) than on educational and vocational stability and satisfaction. Moreover, the extant findings for performance and achievement are perhaps the weakest. The infrequency of such studies may be due to the sheer conceptual and logistical difficulty of obtaining longitudinal measures of success, performance, and achievement in either educational or vocational settings. The weak relationship commonly found between congruence and success may be because of conceptual fuzziness and difficulties with the measurement of such complex constructs as educational and occupational success, achievement, and performance.

Some supporting evidence in higher education settings has been found showing that congruence is related to performance or achievement. For example, Posthuma and Navran (1970) used the Vocational Preference Inventory (VPI) to assess the congruence between 110 students and 44 faculty members. Their findings were generally positive in that students whose personality profiles were congruent with those of faculty members had higher academic performance levels than did incongruent students. Additional supportive findings have been obtained in several other studies. Reutefors, Schneider, and Overtone (1979) examined the relationship between congruence and academic achievement for 392 male and 424 female college freshmen. Their findings showed that congruent students—both males and females—achieved higher grade point averages than incongruent students. The findings of Bruch and Krieshok (1981), in their study of students in an engineering program that emphasized mathematical and scientific (Investigative) coursework, showed that congruent students (those whose highest score was on the Investigative scale of the VPI) achieved a higher mean grade point average than incongruent students. Richards' (1993) ten-year longitudinal study of 2,710 population scientists found that those with a congruent personality profile had higher productivity levels than those with incongruent profiles. Smart and Feldman (1998) present data supportive of predictions based on person-environment congruence for students in Artistic and Enterprising (but not Investigative or Social) academic majors. Reflective of the weak and even contradictory findings in this area, however, were those obtained by Frantz and Walsh (1972), which showed no relationship between congruence and students' academic achievements.

The study of person-environment fit has a long history in the social sciences as part of the intellectual traditions of sociology and psychology in general as well as the somewhat more applied areas of organizational and vocational theory in particular (see Pfeffer, 1998; Rodin, 1985; Walsh, 1973; Walsh and Holland, 1992). Scholars and researchers in this area (see, for example, Caplan and Harrison, 1993, and Stern, 1970) often trace their own work and that of others as far back as the 1930s in the writings of Kurt Lewin (1936) and Henry Murray (1938). John Holland's work on person-environment congruence is clearly of a piece with other work in the area, although he does not explicitly link his efforts either to Lewin or to Murray. Our study, conducted within the established theoretical framework of person-environment fit, represents a test of the validity of the assumption in Holland's (1997) theory that educational achievement is a function of the congruence between students' personality types and their academic environment.

Research Procedures

Sample

Data for this study were obtained from the 1986 and 1990 surveys of the Cooperative Institutional Research Program (CIRP) sponsored by the Higher Education Research Institute at the University of California, Los Angeles. The overall sample consisted of 4,408 students attending 360 different institutions of higher learning. Students completed the standard CIRP freshman survey upon entering college in the fall of 1986 and a follow-up survey in the winter of 1990. The latter survey obtained information about the experiences of these students at college and how these students felt they had changed during the four years. The present study is based on the responses of 2,309 students who were enrolled for all four years, whose academic major is included in Holland's (1997) classification of academic majors, and who provided complete information on all variables described below. Table 1 presents a listing of all majors classified into the four academic environments on which the present study focuses.

Variables

In our study, the classification of persons and of environments was done using the parallel typologies developed by Holland (see French, 1963, for a discussion of the importance of using such commensurate dimensions when measuring and studying person-environment fit).

TABLE 1
Academic Majors/Environments Represented in Student Sample

Realistic

Electrical Engineering
Mechanical Engineering
Marine Science
Drafting/Design
Military Science

Investigative

General Biology
Biochemistry/Biophysics
Botany
Marine (Life) Science
Microbiology/Bacteriology
Zoology
Other Biological Science
Finance
Aeronautical/Astronautical Engineering
Civil Engineering
Chemical Engineering
Astronomy
Atmospheric Science
Chemistry
Earth Science
Mathematics
Physics
Statistics
Other Physical Science
Pharmacy
Premedical/Predental/Preveterinary
Anthropology
Economics
Ethnic Studies
Geography
Sociology

Artistic

Arts
English
Language/Literature
Music
Speech
Theater/Drama
Music/Art Education
Architecture

Social

History
Philosophy
Theology/Religion
Elementary Education
Physical Education/Recreation
Special Education
Home Economics
Library Science
Nursing
Political Science
Psychology
Social Work
Women's Studies
Law Enforcement

Enterprising

Journalism
Business Administration
Marketing
Management
Business Education
Industrial Engineering
Communications
Computer Science

Conventional

Accounting
Secretarial Studies
Data Processing

Not in Holland

Other Humanities
Other Business
Secondary Education
Other Engineering
Health Technology
Therapy
Other Professional
Other Social Science
Other Technical
Agriculture
Other Fields

Classification of academic majors. The 1986 freshman survey asked students to select their "probable field of study," and the 1990 follow-up survey asked students to select their "current/last field of study" from a listing of academic disciplines/majors. We classified these academic majors into the six academic environments proposed by Holland by using *The College Majors Finder* (Rosen, Holmberg, & Holland, 1989).[1] A total of 64 of the 76 majors selected by the students could be thus classified. The Realistic and Conventional categories, however, had a combined total of only four academic majors with too few students to be useful in our analyses; consequently, these two categories were not included in our study. The number of students in each of the remaining four groups of academic majors is: Investigative (n = 672); Artistic (n = 334); Social (n = 788); and Enterprising (n = 515).

1986 and 1990 Ability and Interest Scales. The 1986 and 1990 CIRP surveys asked students to rate themselves compared with the average person their age on 12 different abilities (e.g., mathematical ability, social self-confidence) on a scale with 1 = lowest 10%, 2 = below average, 3 = average, 4 = above average, and 5 = highest 10%. Students were also asked to indicate the importance of 18 general goals and values (e.g., creating artistic work, being very well off financially) using a scale of 1 = not important, 2 = somewhat important, 3 = very important, and 4 = essential. From these items, we picked out those that were characteristic of adjectives used to describe the four Holland personality types considered in our analyses (Holland, 1997).

We used the items we selected—some twenty six of them—to create precollege (1986) and follow-up (1990) scales reflecting the distinctive abilities and interests that each of the four groups of academic majors, classified according to Holland's theory, are hypothesized to reinforce and reward. Thus, a total of eight scales represents students' self-reported abilities and interests at the time they began college and four years later. Each scale was created by standardizing the items and computing the average across items. Student scores were converted to T-scores with a mean of 50 and a standard deviation of 10. A complete listing of all items constituting each scale and the reliability estimates of all scales are presented in Table 2.

We emphasize that the items constituting these scales are based on students' self-reports of their abilities and interests. Pike (1995, 1996) has presented considerable evidence showing the relationships between students' self-reports and objective measures of abilities based on the use of confirmatory factor analysis and multitrait-multimethod analytical procedures. Although he cautioned that there is a need for further research on the relationships between content correspondence and conver-

TABLE 2
1986 and 1990 Student Ability and Interest Scales

1986 and 1990 Investigative Scale	Reliability
Self rating: Self-confidence (intellectual)	α = 0.682 (1986)
Self-rating: Academic ability	α = 0.630 (1990)
Self-rating: Mathematical ability	
Self-rating: Drive to achieve	
Goal: Making a theoretical contribution to science	
1986 and 1990 Artistic Scale	**Reliability**
Self-rating: Artistic ability	α = 0.683 (1986)
Self-rating: Writing ability	α = 0.697 (1990)
Goal: Becoming accomplished in one of the performing arts (acting, dancing, etc.)	
Goal: Writing original works (poems, novels, short stories, etc.)	
Goal: Creating artistic work (painting, sculpture, decorating, etc.)	
Goal: Developing a meaningful philosophy of life	
1986 and 1990 Social Scale	**Reliability**
Goal: Influencing the political structure	α = 0.750 (1986)
Goal: Influencing social values	α = 0.794 (1990)
Goal: Helping others who are in difficulty	
Goal: Becoming involved in programs to clean up the environment	
Goal: Participating in a community action program	
Goal: Helping to promote racial understanding	
1986 and 1990 Enterprising Scale	**Reliability**
Self-rating: Leadership ability	α = 0.752 (1986)
Self-rating: Popularity	α = 0.762 (1990)
Self-rating: Self-confidence (social)	
Goal: Become an authority in my field	
Goal: Obtaining recognition from my colleagues for contributions to my special field	
Goal: Having administrative responsibility for the work of others	
Goal: Being very well off financially	
Goal: Being successful in a business of my own	
Goal: Becoming an expert on finance and commerce	

NOTE: For the Self-rating items, students responded to the prompt "Rate yourself on each of the following traits as compared with the average person your age" using a scale of 1 = Lowest 10%; 2 = Below average; 3 = Average; 4 = Above average; 5 = Highest 10%. For the Goal items, students responded to the prompt "Indicate the importance to you personally of each of the following" using a scale of 1 = Not important; 2 = Somewhat important; 3 = Very important; 4 = Essential.

gence before self-reported data can be fully accepted as "valid proxies of policy indicators" (Pike, 1995, p. 19), he concluded that "using self-reports as general indicators of achievement can be justified" because "self-reports and test scores based on the same set of specifications do represent the same educational outcome domains (i.e., they are congeneric)" (Pike, 1996, p. 110).

Classification of personality types. Holland (1997) has noted that an individual's personality type may be measured by his or her responses to ability and interest scales. We therefore used the four 1986 ability and interest scales just described to determine each student's primary personality type. The profile for each of the 2,309 students was obtained, and students were assigned to the personality type for which they had the highest scale score in 1986. This procedure resulted in the following distribution of students across the personality types: Investigative (n = 789); Artistic (n = 377); Social (n = 553); and Enterprising (n = 590).

Gender and consistency in choice of academic majors (environments). To trace possible conditional effects of gender and consistency or stability of decisions about academic major relative to Holland's assumptions, we obtained information on the gender of students and whether their actual major in 1990 was the same or different from their intended major in 1986. The total sample (n = 2,309) consisted of 1,217 females (52.7%) and 1,092 males (47.3%). Of the full sample, 1,128 students (48.9%) had similar majors/environments in 1986 and 1990 (and thus, in our terminology, were "primary recruits" to their 1990 major) and 1,181 students (51.1%) had dissimilar or different academic majors/environments over the four-year period (and thus were "secondary recruits" to their 1990 major). For further discussion of the difference between "primary recruits" and "secondary recruits" to major fields, see Feldman and Weiler (1976).

Analyses

Longitudinal studies of how academic environments contribute to differential patterns of change and stability in college students must take into account the self-selection of students into those environments to get a more accurate assessment of the actual influence of the environments on students. Although no statistical procedure is a wholly adequate replacement for random assignment and the methodological literature is full of debates on the "correct" analytical procedure to assess change, we chose an analytical approach that relies on a pretest, post-test longitudinal design with repeated measures, which uses students as their own controls.

When we initially examined the data, we found negative correlations between students' scores on the four 1986 ability and interest scales and their change on these scales between 1986 and 1990 (Investigative, −0.439; Artistic, −0.387; Social, −0.509; Enterprising, −0.466). This result indicated to us the presence of regression to the mean (Rogosa, 1988), which would confound our attempts to assess change in students' abilities and interests as a function of their Holland environments. Though there are many differing opinions as to both the causes of regression to the mean and the best methodological approaches to deal with the problem, we adapted a procedure developed by Roberts (1980) that adjusts initial scores for regression-to-the-mean bias. This procedure was used by the RMC Research Corporation in their Title I Evaluation and Reporting System (Tallmadge, Wood, & Gamel, 1981). We note that although this procedure reduces the bias associated with regression to the mean, it does not eliminate it (Linn, 1980; Reisner, Alkin, Boruch, Linn, & Millman, 1982; Roberts, 1980; Tallmadge, 1982). Nor does it eliminate possible "ceiling effects," the operation of which also makes it hard for persons already high on some characteristic to increase still further in that characteristic.

The adjustments to the 1986 ability and interests scale scores were made using the following:

$$X' = X + (1 - r_{xx})(50 - X)$$

where

X' = adjusted 1986 scale score
X = unadjusted 1986 scale score
r_{xx} = test-retest reliability (correlation between 1986 and 1990 scores)
50 = mean of the scale scores (each scale was converted to T-scores with a mean of 50 and a standard deviation of 10).

The test-retest reliabilities used for these adjustments are: Investigative, 0.643; Artistic, 0.691; Social, 0.461; and Enterprising, 0.592. These adjusted scores were used in all analyses that examined patterns of change among students between 1986 and 1990.

We defined "higher levels of achievement" in Holland's theory as students' positive gain ("growth") in abilities and interests reflective of their dominant personality type. Similarities and differences among students are examined at two points in time (1986 and 1990) to assess the assumption that congruence between dominant personality of students and their academic environments fosters higher levels of achievement of the distinctive abilities and interests characterizing the four personality types and academic environments. We used repeated measures analysis of variance to examine this assumption. Separate analyses were conducted for each of the four ability and interest scales described in Table 2. For example, in our analyses of Investigative abilities and interests we selected all students with a dominant Investigative personality type (n = 789). The within-subjects independent variable in the repeated measures analysis of variance was the student's self-rated assessment of abilities and interests in 1986 and 1990. Three between-subjects factors were included in the analysis to test for the possibility of interactions between overall change and (1) congruence between the student's personality type and his or her academic environment, (2) gender of the student, and (3) similarity or dissimilarity of the student's academic environment in 1986 and 1990 (as an indicator of whether the student was a primary or secondary recruit to the environment). Our interest in these analyses was the pattern of change and stability in students' self-rated interests and abilities over time based on the congruence between their personality type and academic environment as well as the extent to which these changes were similar for men and women and for primary and secondary recruits.

Each of the four analyses had two levels for each of the three between-subjects factors. The two gender levels were males and females. The two levels in the similarity of students' 1986 and 1990 academic majors were students having similar majors (primary recruits to the 1990 major) and dissimilar majors (secondary recruits to the 1990 major) at these two points in time. The two levels of congruence distinguished between students who majored in academic environments that were congruent or incongruent with their dominant personality type. A significant interaction between students' congruence with their academic environment and year would indicate that gains on the initially prominent abilities and interests between 1986 and 1990 depended on their selection of a congruent or incongruent academic environment. When significant interactive effects were found for gender or similarity of 1986 and 1990 majors, the congruence-by-year interactions were plotted separately for the subgroups of students.

Results

Table 3 presents the means on the four 1986 and 1990 ability and interest scales for students classified according to the congruence between their personality type and academic environment. These means are plotted in Figures 1 through 5 as well. The magnitudes and direction of change for students are also shown on the graphs in Figures 1 through 5 in terms of effect sizes. These effect sizes, which were calculated using the error mean squares from the within-subject analyses, convert the difference between the 1986 and 1990 means for each group to standard-deviation units. A second set of effect sizes—calculated using the error mean squares from the between-subject analyses—indicates the differences between students in congruent and incongruent environments in 1986 as well as 1990, and are also shown in the figures. In all analyses, with the exception of the one for Social abilities and interests, the congruence-by-year interaction term was statistically significant indicating

TABLE 3
Means and Standard Deviations for 1986 and 1990 Ability and Interest Scales

	1986		1990	
Investigative scale	Congruent	Incongruent	Congruent	Incongruent
Primary	57.209	52.576	58.737	53.079
	(5.228)	(4.736)	(9.065)	(9.001)
Secondary	55.109	54.155	57.201	52.286
	(4.945)	(5.354)	(8.705)	(8.863)
	1986		1990	
Artistic scale[a]	Congruent	Incongruent	Congruent	Incongruent
	58.580	56.293	62.369	54.872
	(5.429)	(6.591)	(9.782)	(10.208)
	1986		1990	
Social scale[a]	Congruent	Incongruent	Congruent	Incongruent
	53.798	54.275	54.609	53.730
	(4.106)	(4.243)	(9.824)	(9.880)
	1986		1990	
Enterprising scale[a]	Congruent	Incongruent	Congruent	Incongruent
	55.187	55.241	57.394	55.312
	(4.860)	(4.887)	(9.057)	(9.480)

NOTE: Standard deviations are in parentheses.
[a] Results are similar for males and females, primary and secondary recruit.

that the pattern of change from 1986 to 1990 differed for students who were congruent and incongruent with their academic environments. Statistical results from the analyses are presented in Appendix A. We have organized the following discussion of results by the four personality types and whether or not they were in congruent or incongruent environments.

Investigative personality types. As noted, Table 3 presents the means on the 1986 and 1990 Investigative ability and interest scales for students who have a dominant Investigative personality type and who were in congruent (i.e., Investigative) and incongruent (i.e., Artistic, Social, or Enterprising) academic environments. Separate results are presented for primary and secondary recruits who had a dominant Investigative personality type, for this personality type—alone among the four types—showed a statistically significant interaction term involving similarity/dissimilarity of 1986 and 1990 major environment (as an indicator of type of recruit). However, the results are more clearly depicted in the graphical representation of the interactions found, and we focus our attention on Figures 1 and 2.

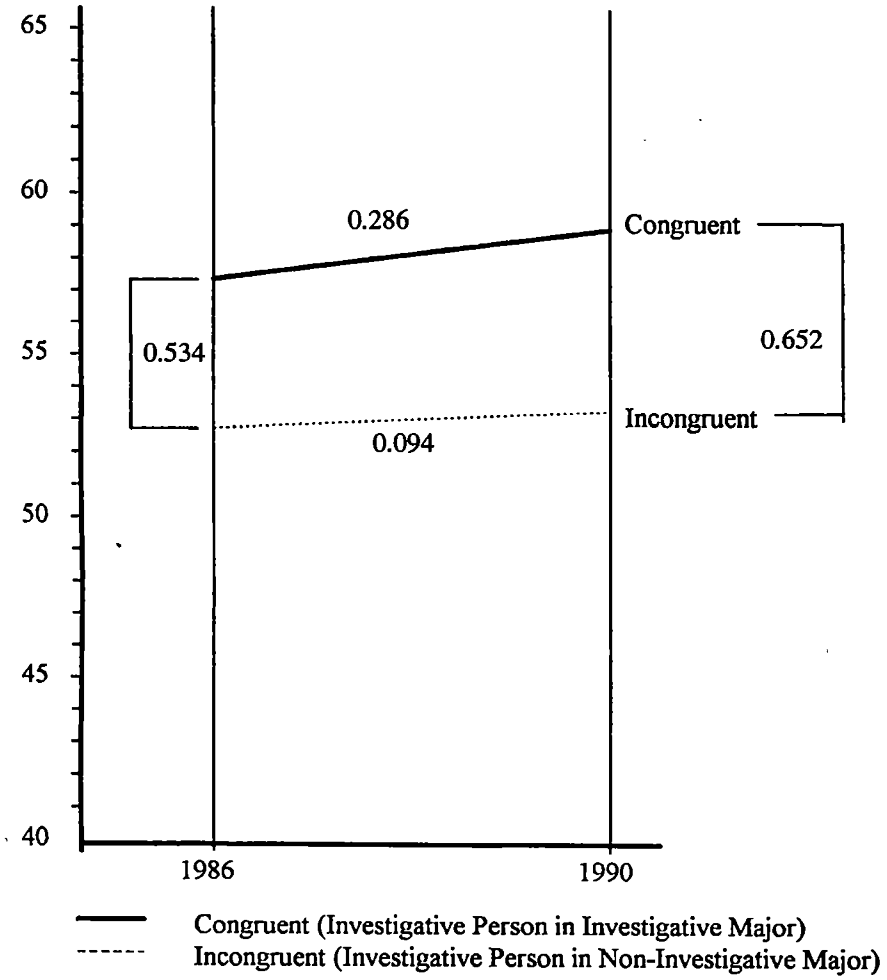

FIG. 1. Changes in Investigative Abilities and Interests of Students with Investigative Personalities in Congruent and Incongruent Environments—Primary Recruits (Numerical values indicate effect sizes of mean differences.)

The overall pattern of findings for students with a dominant Investigative personality type shown in Table 3 and Figures 1 and 2 provides results consistently supportive of the assumption that those who enter congruent academic environments generally develop stronger (self-reported) Investigative abilities and interests over the four-year period than do those who enter incongruent environments. For both primary and secondary recruits, those who major in congruent (Investigative) academic environments show a decidedly stronger pattern of gains in Investigative abilities and interests than their Investigative peers who entered incongruent environments (Artistic, Social, and Enterprising). This

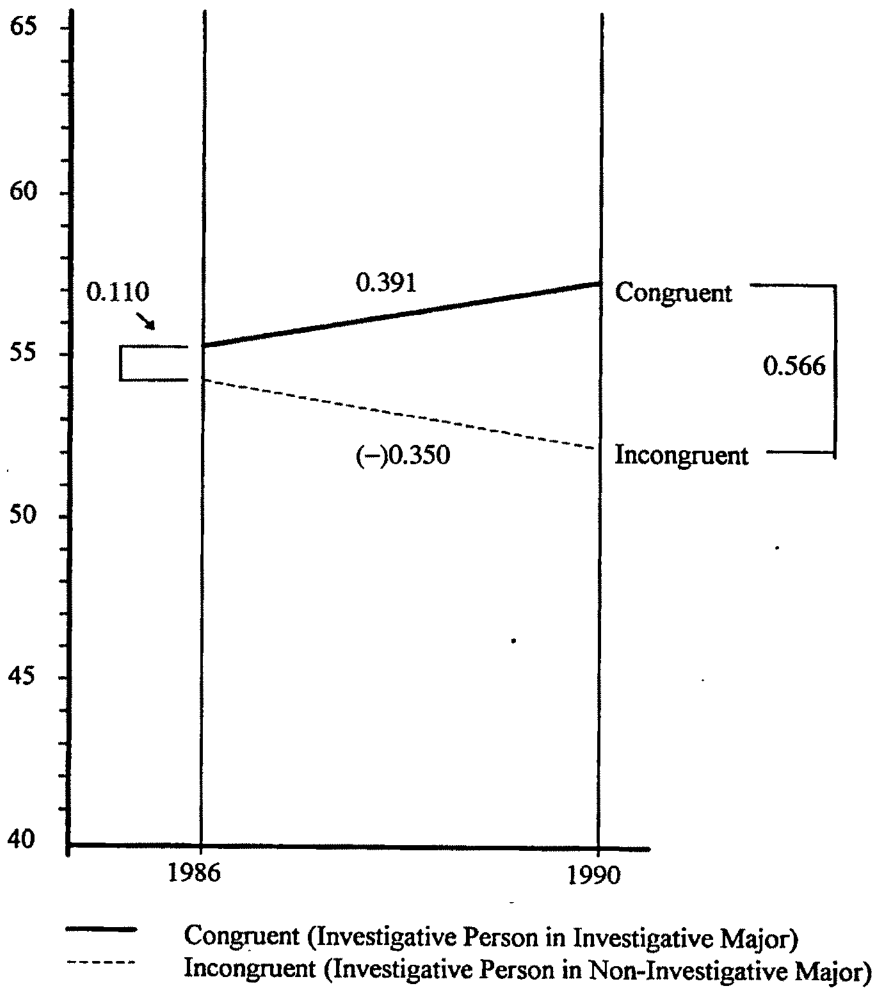

FIG. 2. Changes in Investigative Abilities and Interests of Students with Investigative Personalities in Congruent and Incongruent Environments—Secondary Recruits (Numerical values indicate effect sizes of mean differences.)

is evidenced by the increases in Investigative interests and abilities over the four-year period of 0.286 and 0.391 standard deviations for primary and secondary recruits, respectively. By contrast, as shown by the dotted lines in Figures 1 and 2, primary recruits in incongruent environments are more or less *stable* in their interests and abilities (a change of only 0.094 standard deviations), and secondary recruits in incongruent environments actually *decrease* by 0.350 standard deviations.

The effect sizes comparing Investigative students in congruent and incongruent environments in 1986 indicate that the two groups of students differ in the strength of their Investigative abilities, with students in congruent environments having stronger initial traits than those in incongruent environments. This tendency is much greater for primary recruits, where the two groups differ by 0.534 standard deviations, than for secondary recruits, who differ by only 0.110 standard deviations. This differentiation between students in congruent and incongruent environments becomes more pronounced in 1990 (differences of 0.652 and 0.566 standard deviations for primary and secondary recruits, respectively). This increase in differentiation between students in congruent and incongruent environments (in Investigative abilities and interests) during the college years is four times greater for secondary recruits than for primary recruits. For secondary recruits, the difference in effect size between 1986 and 1990 is +0.456 (0.566–0.110), whereas the change in effect size for primary recruits is only +0.118 (0.652–0.534).

Thus, the findings from the separate analyses for primary and secondary recruits do show a common pattern of increasing Investigative abilities and interests over the four-year period for those who are congruent. The greater magnitude of change in differentiation between congruent and incongruent groups in the findings for secondary recruits results from the actual decline in Investigative abilities and interests for those who were in non-Investigative (incongruent) academic environments; for primary recruits who were in incongruent academic environments the pattern reveals a more or less consistent level of Investigative abilities and interests over the four-year period.

The somewhat different findings obtained for primary and secondary recruits in these analyses may be a function of the fact that primary recruits who entered congruent and incongruent academic environments were considerably more different in 1986 than were secondary recruits (compare 1986 effect sizes in Figures 1 and 2). Our confidence in this explanation is not great, however, because we did not find a similar interaction for the three other personality types.

Artistic personality types. The findings for Artistic personality types provide the strongest support among the four personality types for the congruence assumption in Holland's theory. The means on the 1986 and 1990 Artistic ability and interest scales for students who have a dominant Artistic personality type and who were in congruent (i.e., Artistic) and incongruent academic environments are shown in Table 3. These same means together with the two types of effect sizes mentioned earlier are presented in Figure 3.

Inspection of Table 3 and Figure 3 shows a decided increase in Artistic abilities and interests over the four-year period for students with a dominant Artistic personality type who majored in a congruent academic environment (i.e., Artistic) in contrast to their Artistic peers who

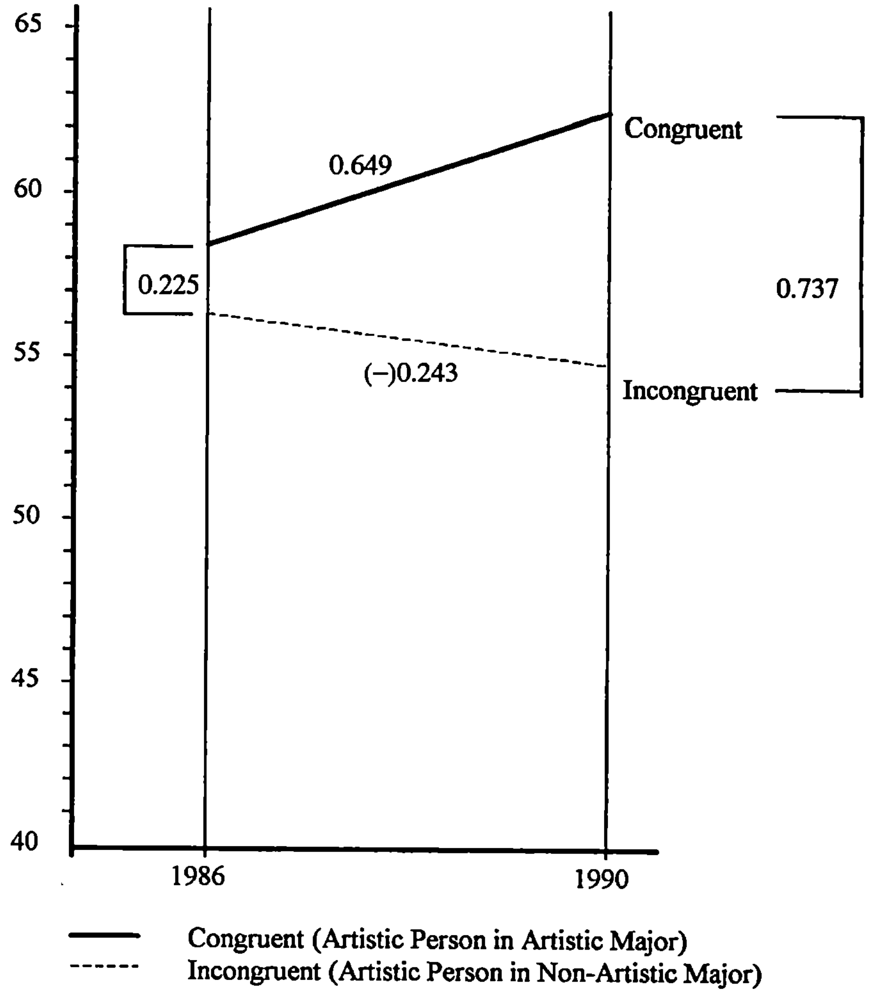

FIG. 3. Changes in Artistic Abilities and Interests of Students with Artistic Personalities in Congruent and Incongruent Environments (Numerical values indicate effect sizes of mean differences.)

majored in the three other environments. Students in congruent environments *increased* their (self-reported) artistic abilities and interests by 0.649 standard deviations, whereas students in incongruent environments *decreased* in those same areas by 0.243 standard deviations. In 1986 Artistic students selecting academic majors congruent with their personality were 0.225 standard deviations stronger in their Artistic abilities and interests than students who selected non-Artistic majors. The differing patterns of change for the two groups of students result in much greater differentiation between the two groups in 1990. The effect size reflecting the magnitude of their mean difference in 1990 between students in congruent and incongruent fields (0.737) is more than a half a standard deviation greater than the equivalent effect size four years earlier (0.225). Moreover, this clear and strong pattern of gains in Artistic abilities and interests of Artistic types in Artistic fields and decrease in these abilities and interests in non-Artistic fields is similar for men and women and for primary and secondary recruits because none of the relevant interactions were significant.

Social personality types. Whereas the findings for students with Artistic personality types provide the clearest and strongest example of accentuation of initial group differences, the corresponding findings for students with a dominant Social personality type provide the weakest and least clear set of findings. The means on the 1986 and 1990 Social ability and interest scales for students who have a dominant Social personality type and who were in congruent (i.e., Social) and incongruent academic environments are shown in Table 3, while Figure 4 presents a plotting of these same means along with effect sizes.

Although students with a dominant Social personality type who enter a congruent academic environment (Social) do slightly increase in (self-reported) Social abilities and interests and slightly decrease in them when they enter incongruent academic environments, the changes are very small (there were no statistically significant effects pertaining to premises from Holland's theory for students whose dominant personality type was Social). These weak findings are also evident in the effect sizes reported in Figure 4; there is little difference in Social abilities and interests between students (with a dominant Social personality type) who entered congruent and incongruent academic environments—either at the beginning or end of the four-year period. Both groups remain rather stable in those traits, with those in congruent environments increasing by only 0.127 standard deviations and those in incongruent environments decreasing by only 0.085 standard deviations. In addition, these findings are similar for males and females and for primary and secondary recruits. We conclude that the results for students with a dominant Social personality type do not support the congruence assumption of Holland's theory: the pattern and direction of results meet the expectations of the theory, but their strength is minimal.

Enterprising personality types. The means on the 1986 and 1990 Enterprising ability and interest scales for students who have a dominant Enterprising personality type and who were in congruent (i.e., Enterprising) and incongruent academic environments are shown in Table 3 (with a plotting of these means and effect sizes given in Figure 5). The findings for students with a dominant Enterprising personality type show clear support (in direction and pattern of results) for the congruence as-

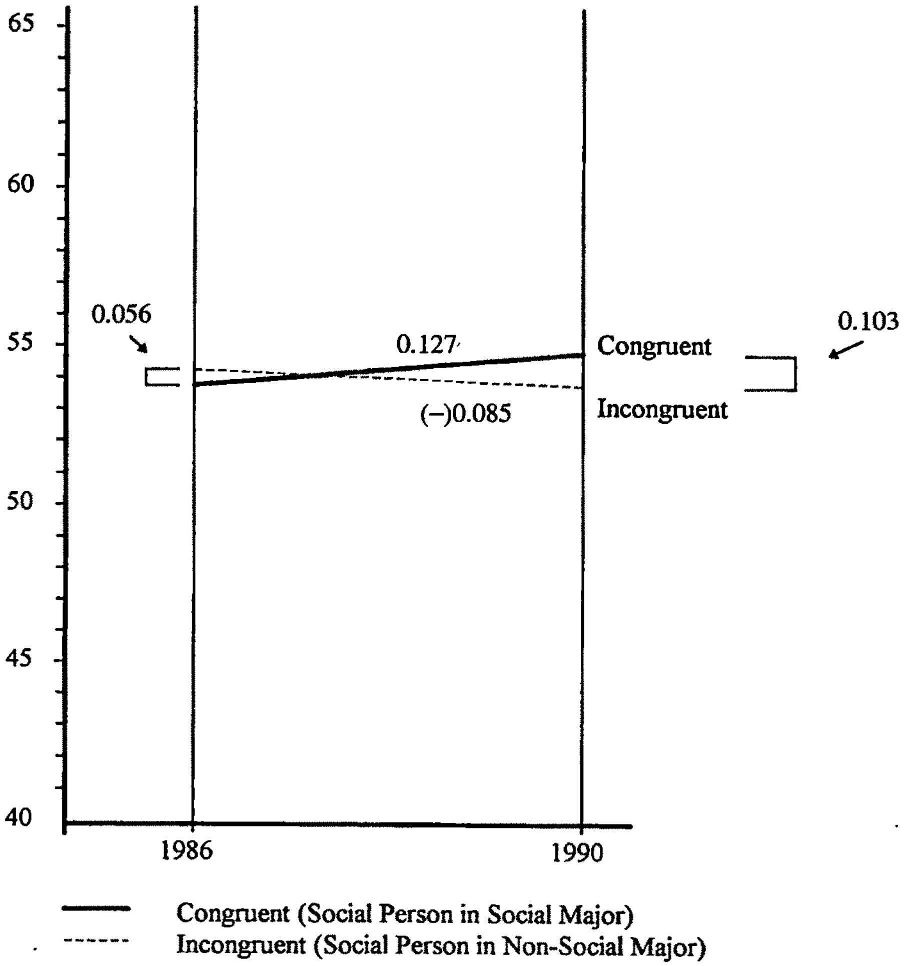

FIG. 4. Changes in Social Abilities and Interests of Students with Social Personalities in Congruent and Incongruent Environments (Numerical values indicate effect sizes of mean differences.)

sumption of Holland's theory. The graphical profile for Enterprising students who entered congruent and incongruent academic environments (see Figure 5) clearly shows a decidedly stronger pattern of gains in Enterprising abilities and interests for the former. Students in congruent environments increase with respect to their (self-reported) Enterprising abilities and interests by 0.381 standard deviations, whereas those in incongruent environments essentially do not change, for the difference between their 1986 and 1990 scores is only 0.012 standard deviations. There is essentially no difference in the strength of the Enterprising personality trait for students selecting congruent and incongruent majors

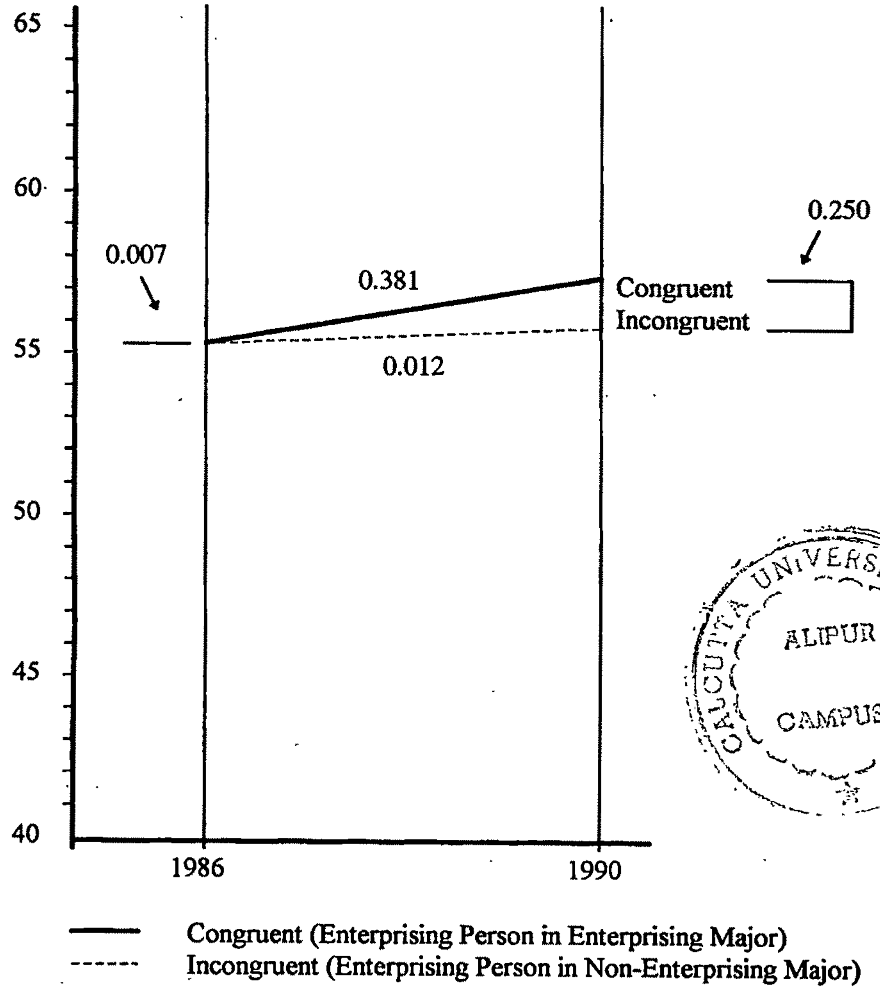

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FIG. 5. Changes in Enterprising Abilities and Interests of Students with Enterprising Personalities in Congruent and Incongruent Environments (Numerical values indicate effect sizes of mean differences.)

in 1986 (a difference of only 0.007 standard deviations). However, in 1990 the two groups differ by one-fourth of a standard deviation. This increased group differentiation is predominantly the result of the increase in Enterprising abilities and interests of students in congruent (Enterprising) environments. These findings are equally true for male and female students and for primary and secondary recruits.

Although the findings for Enterprising students clearly conform to expectations derived from the congruence assumption of Holland's theory, they are not as strong as those reported above for Artistic students in general or for Investigative students who were secondary recruits. They are, however, more supportive of the congruence assumption than those obtained for either Social students in general or for Investigative students who were primary recruits.

Overall, then, we found a pattern of increasing differentiation between congruent and incongruent students in their self-rated abilities and interests from the time they entered college in 1986 to four years later, produced by students in congruent fields increasing in their dominant skills and interests with students in incongruent fields increasing less in these skills and interests or actually decreasing in them. The common pattern of increasing differentiation between congruent and incongruent students, evident from inspection of Figures 1 through 5, is summarized in Table 4. This table shows the initial (1986) and subsequent (1990) effect-size differences for each personality type between students who entered congruent and incongruent academic environments (except for Social personality types where the congruence-by-year interaction is not statistically significant). The final column is the difference or "change" in the magnitude of the effect sizes over the four-year period.

Inspection of the final column in Table 4 shows a consistent pattern of increasing differentiation in the abilities and interests of students who entered congruent and incongruent academic environments. In all instances there is an absolute increase in the magnitude of differences between 1986 and 1990. As a set, our findings definitely support the general conclusion that student achievement is positively related to congruence between their personality type and their academic environment. Also evident, however, is substantial variability in the relative strength of support across the four personality types. The evidence is most consistent and supportive for students with a dominant Artistic personality type and those with an Investigative personality type who are secondary recruits, where the initial differentiation between congruent

TABLE 4

Effect Sizes in 1986 and 1990 for the Difference in Score on the Relevant Ability and Interest Scale for Students of Different Personality Type Entering Congruent and Incongruent Academic Environments

Personality Types	1986 Effect Size: Congruent versus Incongruent Students	1990 Effect Size: Congruent versus Incongruent Students	Difference in Effect Size
Investigative students:			
Primary recruits	0.534	0.652	0.118
Secondary recruits	0.110	0.566	0.456
Artistic students	0.225	0.737	0.512
Social students	[congruence-by-year interaction not statistically significant]		
Enterprising students	(–) 0.007	0.250	0.257

and incongruent students increases by approximately one-half a standard deviation over the four-year period. Although the profiles for students with a dominant Enterprising personality type and those with an Investigative personality type who are primary recruits also conform to expectations from Holland's theory, the pattern of increasing differentiation is only moderate for the Enterprising students and even less strong for Investigative students who are primary recruits. The findings for students with a dominant Social personality type do not provide support for the congruence assumption of Holland's theory.

Discussion

The congruence assumption of Holland's theory postulates that person-environment fit is related to various important educational and vocational outcomes—including stability, satisfaction, and success or achievement. As we noted in our introduction, both the relationship between such congruence and educational and vocational stability and the relationship between it and satisfaction, have been studied with more frequency (yielding more supportive results) than has the relationship between congruence and success or achievement. Our analyses of the differential patterns of actual change and stability (over a four-year period) in the abilities and interests of congruent and incongruent students constitute an indirect assessment of the relationship between person-environment congruence and the achievement of students in four-year college settings. Within the context of Holland's theory, we expected that growth or achievement of students—in terms of gains in selected abilities and interests—would be a function of the congruence or fit between their individual personality type *and* their academic environment.

Our analyses, then, pertain primarily to the body of research that has examined the relationship between congruence and achievement (rather than stability or satisfaction), and our findings can be interpreted in terms of their absolute support—or lack thereof—regarding the validity of the congruence assumption in Holland's theory and their relative strength in terms of prior research findings regarding the relationship between congruence and achievement. Thus, our assessment of our collective findings regarding the congruence assumption is based on the extent to which they support or refute that assumption and on their general similarity or dissimilarity to extant research findings on this assumption.

We conducted four analyses to assess the validity of the premise that person-environment congruence is positively related to higher levels of student performance/achievement—one for each of the four personality types. In all analyses, we examined differences in the patterns of change for congruent and incongruent students, and in each instance but one (Social abilities and interests) we found a statistically significant pattern of increasing differentiation between the two groups of students in their (self-reported) abilities and interests from the time they entered college in 1986 to four years later. This pattern is produced by students in congruent fields increasing in their dominant skills and interests and students in incongruent fields increasing less in these skills and interests or actually decreasing in them.

Put in terms of accentuation of initial differences between groups (see Feldman & Weiler, 1976; Smart & Feldman, 1998), we found relatively stronger accentuation effects for some outcomes than for others. For example, the preexisting (1986) differences in the Artistic abilities and interests of congruent and incongruent Artistic students becomes more pronounced or accentuated in 1990, whereas this is much less the case for congruent and incongruent primary recruits to Investigative fields with respect to Investigative abilities and interests. *Why* such differential findings emerge has not been examined in depth in the pertinent research literature. This neglect is unfortunate because it limits our understanding of what substantive practices contribute to successful socialization in some academic environments and not in others.

Holland (1985a, 1997) offers a number of potential explanations for the differential success of academic environments in reinforcing and rewarding the characteristic patterns of abilities and interests of their associated personality types. He notes in general that highly differentiated environments and those with strong identity are more successful in reinforcing their preferred pattern of abilities and interests than are those that are undifferentiated and have a diffuse identity. Highly differentiated environments are defined as those that encourage a narrow range of behaviors in explicit ways, whereas undifferentiated environments stimulate a broader range of behaviors and offer ambiguous guidance to individuals. Similarly, environments with high (clear) identity have a limited set of consistent and explicit goals, whereas those with a low, diffuse identity are characterized by a large set of conflicting and poorly defined goals. Thus, the constructs of environmental differentiation and identity essentially define the clarity and focus of academic environments.

It seems reasonable to assume that one possible explanation of the differential success of the four academic environments in our study to promote student change over the four-year period in a manner consistent with the characteristic pattern of abilities and interests of their associated personality types could be differences in the levels of their environmental differentiation and identity. Are, for example, Artistic academic environments more highly differentiated and do they have higher identity levels than Social environments? Do Artistic environments, in fact, encourage in explicit ways a more narrow range of behaviors, and are their goals more explicit and consistent than those of Social environments? These are important questions in efforts to develop deeper understanding of the differential success of socialization mechanisms of academic environments in promoting their own self-defined goals and objectives for student change.

To date, Holland's theory has been most helpful in providing theory-based explanations of differential patterns of change and stability in students' abilities and interests based upon students' selection of and involvement in disparate groups of academic majors. Little attention has been given to specific organizational features of academic environments (e.g., their clarity and focus) and to specific socialization mechanisms (e.g., classroom practices, out-of-class faculty-student interactions) employed within those environments that are related to their differential success in promoting their own self-defined goals and objectives for student change. We suggest that the time has arrived for such in-depth analyses in order to advance our understanding of the differential success of these academic environments and to promote student learning.

Holland (1997) suggests that socialization occurs through environmental efforts (1) to stimulate individuals to perform the preferred activities of the environment, (2) to foster their respective competencies, (3) to encourage them to see themselves in ways consistent with the preferred values of the environment, and (4) to reward them for the display of the preferred values of the environment. These suggestions might be a useful place to begin systematic study of the socialization processes of academic environments. We might begin, for example, with comparative descriptive studies of the different kinds of academic environments (postulated and described by Holland) in terms of the kinds of *activities* they encourage students to become engaged in, the types of *competencies* they seek to develop in students, the kinds of *self-concepts* they attempt to promote in their students, and the types of interests, values, and competencies they most commonly *reward.*

Some such efforts have been undertaken, and the findings suggest that this line of inquiry has much potential for contributing to greater understanding of the distinct socialization mechanisms of the disparate academic environments (in Holland's theory) in producing differential patterns of change and stability in their respective "student bodies." For example, evidence exists that faculty in the various academic environments attribute different importance to alternative broad undergraduate education goals (Smart et al., forthcoming), place varying emphasis on different specific teaching goals in their classrooms (Smart, 1982), use different strategies of instruction in their classrooms (Peters, 1974), emphasize the development of different student competencies (Thompson & Smart, 1998), and have distinct preferences for preferred modes of interacting with undergraduate students (Morstain & Smart, 1976).

Such studies have found, for example, that faculty in Investigative environments place a distinctly high value on broad undergraduate education goals associated with developing students' understanding of mathematics and science (Smart et al., forthcoming), emphasize the development of analytical, mathematical, and scientific competencies of students in their classes (Thompson & Smart, 1998), rely most heavily on formal and structured teaching-learning strategies (e.g., lecture-discussion) that are strongly subject-matter centered (Peters, 1974), and believe that students learn best by meeting specific, clear-cut a priori course requirements set be the faculty (Morstain & Smart, 1976). Juxtaposed to this profile of faculty in Investigative academic environments are their colleagues in Social environments who stress the development of students' values and character development (Smart, 1982), emphasize the development of humanitarian, teaching, and interpersonal competencies of students in their classes (Thompson & Smart, 1998), rely predominantly on strategies of informal and unstructured teaching-learning (e.g., group discussion) that are clearly student-centered (Peters, 1974), and prefer a collegial mode of interaction with students based on their belief that students do their best work when they are on their own (Morstain & Smart, 1976).

The point here is not to advocate the use of any single set of teaching-learning strategies or mode of interaction between faculty and undergraduate students. Rather, the purpose is to suggest alternative lines of inquiry that have the potential to contribute to understanding of the differential "success" of the socialization efforts of the academic environments in Holland's theory. It would appear fruitful—from the limited research undertaken thus far—to explore the differential emphases and teaching-learning strategies employed by faculty members in the disparate academic environments in order to understand the differential effectiveness of those environments.

Finally, it should be noted that the strength of positive support provided by our current findings for the congruence assumption is noteworthy in the context of findings obtained in prior research (see, for example, Assouline & Meier, 1987; Spokane, 1985; 1996; Tranberg, Slane, & Ekeberg, 1993; Walsh & Holland, 1992). In general, we found changes in the effect-size differences between congruent and incongruent students (between 1986 and 1990) ranging from one-tenth to one-half a standard deviation. These estimates of differential patterns of change in student abilities and interests appear to be very strong relative to prior research evidence. We offer two possible reasons for the stronger support our findings provide for the congruence assumption. First, our study examined patterns of change and stability in student abilities and interests over a longer period of time than is commonly the case. Most prior research has examined such change over a semester or academic year, whereas ours extended over a four-year period. Second, unlike prior research on Holland's theory and the vast majority of longitudinal research on how college affects students, we made adjustments in students' initial abilities and interests to deal with the basic problem of regression to the mean, which is a common threat to the internal validity of longitudinal research designs.

Notes

[1] The assignment of specific major fields of study to academic environments in *The College Majors Finder* was based on a straightforward comparison of the correspondence between occupations and major fields of study using the *Dictionary of Holland Occupational Codes* (Gottfredson & Holland, 1989) and the "Occupations Finder" of *The Self-Directed Search* (Holland, 1985b). Both documents list the Holland code of over 10,000 occupations. For instance, the primary Holland occupational code for Chemical Engineering is Investigative since most individuals who enter that occupation have a dominant Investigative personality type (Gottfredson & Holland, 1989; Holland, 1985b). Most people who become chemical engineers majored in chemical engineering in college; thus the "chemical engineering" major is classified as an Investigative academic environment.

APPENDIX A

Analysis of Variance Results of 1986 and 1990 (Self-Reported) Abilities and Interests Scales

	Investigative (*df* = 1,781)		Artistic (*df* = 1,369)		Social (*df* = 1,545)		Enterprising (*df* = 1,582)	
Source	MS	F	MS	F	MS	F	MS	F
Between Subjects Effects								
Holland environment	4653.80	61.75***	3932.83	38.04***	35.69	0.49	334.38	4.81*
Type of recruit	238.47	3.16	33.84	0.33	46.35	0.64	11.10	0.16
Gender	1776.48	23.57***	1034.11	10.00**	3.67	0.05	3030.52	43.60***
Holland by type of recruit	363.12	4.82*	18.76	0.18	148.28	2.04	90.87	1.31
Holland by gender	99.71	1.32	0.93	0.01	172.38	2.37	238.50	3.43
Type of recruit by gender	92.58	1.23	230.52	2.23	12.95	0.18	91.81	1.32
Holland by type of recruit by gender	232.87	3.09	85.30	0.83	215.84	2.97	72.29	1.04
Within plus residual	58863.68		38146.07		39651.61		40452.77	
Within Subject Effects								
Year	74.74	2.62	260.52	7.63**	6.19	0.15	255.52	7.62**
Holland by year	401.36	14.05***	956.14	28.02***	85.25	2.08	317.96	9.49**
Type of recruit by year	68.64	2.40	5.17	0.15	1.59	0.04	3.26	0.10
Gender by year	245.68	8.60**	92.11	2.70	204.23	4.98*	913.26	27.25***
Holland by type of recruit by year	215.48	7.54**	11.95	0.35	144.78	3.53	0.10	0.00
Holland by gender by year	65.31	2.29	74.91	2.20	16.89	0.41	0.28	0.01
Type of recruit by gender by year	1.16	0.04	0.03	0.00	27.20	0.66	50.60	1.51
Holland by type of recruit by gender by year	15.53	0.54	1.77	0.05	47.11	1.15	6.36	0.19
Within plus residual	22314.63		12591.21		22331.76		19508.54	

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$.

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Profiles of Effective College and University Teachers

Although considerable research has been conducted in the arena of teacher effectiveness, important questions continue to persist: What is effective teaching? How may it be defined? How may it be measured? To date, educators and researchers have failed to reach agreement about clear-cut answers to these questions; indeed, consensus may not be possible. The answers undoubtedly are affected by a number of things, including the recognition that teaching effectiveness comprises multiple perspectives (Abrami, d'Apollania, & Rosenfield, 1997; Marsh & Dunkin, 1997) as well as such characteristics as the type of course, class size, student abilities, and grading practices (Abrami, d'Apollonia, & Cohen, 1990; Greenwald & Gillmore, 1997). Additionally, methodology may have a differential effect on findings. For example, according to d'Apollonia and Abrami (1997), reviews of multisection validity studies often reach different conclusions due, in part, to reviewers' biases.

The primary issues addressed in this study deal with how teaching effectiveness might be defined or, more accurately, whether it might be defined in multiple ways, and if so, how it might be defined. For example, does the multidimensionality of the construct dictate multiple definitions, or might a single definition be able to capture it? We have addressed these matters in this study from the standpoint of student-rated teacher effectiveness and with methodology that, though somewhat unconventional, was selected in an effort to maximize interpretability of results by magnifying relationships and at the same time minimizing

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measurement error. Our approach was to ask students to rate instructors from whom they had taken a college or university course in the recent past, using high-inference items garnered from the teaching effectiveness literature that have shown to be strong correlates of teaching effectiveness. Prior to conducting their ratings, the students were provided with a brief training and question/answer session that dealt with avoidance of rating errors and clarification of items, procedures, the referent, and the like. The data they provided us were analyzed to see if multiple definitions of teacher effectiveness were indicated.

A large segment of the teacher effectiveness literature describes investigations that seek identifying characteristics, factors, traits, classroom behaviors, and so on, of effective teachers by rating instruction; student ratings, in particular, have received a great deal of attention. The validity of student ratings has been thoroughly analyzed and generally supported in the literature during the past 25 years (Centra, 1994; Cohen, 1981, 1987; Feldman, 1989; Marsh, 1987; Marsh & Bailey, 1993). Indeed, Greenwald (1997) suggests that reviews of research conducted since about 1980 indicate overwhelming evidence supporting the construct, convergent, discriminant, and consequential validity of student ratings.

Student ratings of instruction have been found to correlate highly with instructor personality traits (Feldman, 1986; Murray, Rushton, & Paunonen, 1990; Renaud & Murray, 1996). The Dr. Fox experiments of the 1970s (Marsh, 1987; Naftulin, Ware, & Donnelly, 1973) illustrated that students rated charismatic and expressive instructors as highly effective, regardless of the substantive content of a lecture. Murray et al. (1990) correlated peer ratings of personality traits with student ratings and found that personality traits differed among course types. Renaud and Murray (1996) also investigated relationships between instructor personality and student ratings but did not differentiate between course types. Their patterns of correlations were stronger than those found in the Murray et al. study, but could be due to restricted ranges in the earlier study.

Student achievement and student ratings have been found to be related (Cohen, 1981, 1987; Greenwald & Gillmore, 1997; Marsh, 1987). Koon and Murray (1995) correlated student ratings with final examination scores for 36 instructors of an introductory psychology course and found a zero-order correlation of 0.41. In a meta-analysis of 41 independent studies, Cohen (1981) found an average correlation of 0.43 between student ratings of instructors and student achievement. Cohen also found that the average correlation between student ratings of the course and student achievement was 0.47. Marsh (1987) addressed the confounding issue of grades and student evaluations. He argued that it is difficult to explain the relationship between grades and evaluations.

> When grades and exam scores are significantly correlated, then higher evaluations by students may be due to (a) more effective teaching that produces greater learning and higher evaluations by students; (b) increased student satisfaction with higher grades which causes them to 'reward' the instructor with higher ratings independent of more effective teaching or greater learning; or (c) initial differences in student characteristics that affect both teaching effectiveness and performance. (p. 290)

Marsh and Roche (1997) summarized research on grading leniency by stating that a bias does indeed exist but that its effects are inconsequential.

Greenwald and Gillmore (1997) discussed the relationship between student ratings and course grades and concluded that the strong relationship between the two is indication of a causal relationship; grading leniency by instructors leads to more positive student evaluations. Overall, the research on teacher effectiveness indicates a moderately positive relationship between student ratings of instruction and student achievement.

Researchers have validated student evaluation of instruction by correlating student ratings of specific dimensions with overall measures, with ratings by other observers, with self-evaluations, and even with ratings by former students (for example, Arubayi, 1986; Cohen, 1981; Feldman, 1976, 1988; Marsh, 1987; Marsh & Overall, 1979; Miller, 1988). Overall and Marsh (1980) found a strong positive correlation between ratings of students with the same students for the same courses several years later, indicating that student ratings are stable over time. According to McKeachie (1983), "Students are in class almost every day and they know what's going on. They are the ones we are trying to affect, and they have some sense of whether they are learning" (p. 38). And again, in 1997, McKeachie was consistent in his views when he stated "Students will continue to be those most affected by teaching. Therefore, student ratings will continue to be useful" (p. 1224).

Teacher effectiveness is a complex, multidimensional construct (Chau & Hocevar, 1994; Marsh, 1987; Marsh & Roche, 1997) that may be captured by a variety of models. However, our methods of modeling such constructs are somewhat primitive. Correlational approaches are useful but their limitations are well known. For example, an item such as "course is well organized" will usually correlate highly with an item like "overall teacher effectiveness," and will often emerge as a significant contributor among any set of items in explaining or accounting for teacher effectiveness. Yet not all well-organized courses are presented by effective teachers and not all effective teachers present well-organized courses. Should we then include in a definition of teacher effectiveness that courses be well organized? It is neither a necessary nor sufficient trait, yet it bears a high relationship to effectiveness. How should this, or may this, be modeled? A related matter is the inherent additive nature of linear models in regression and discriminant analyses that serves to compound the correlation problem and leads to additional issues regarding appropriate or "best" weightings for items. Feldman (1988), in a review of studies examining the effectiveness of faculty from both student and faculty perspectives, offers an interesting and similar discussion of this issue. He suggests that correlates of good teaching, such as subject matter knowledge, might be seen as highly important to students but, in fact, may not discriminate between good teachers and poor teachers.

Methods

This study sought to address the issue of effective teaching by attempting to identify alternative models to be compared with these traditional approaches, to take into account the possibility that there may be multiple definitions of teacher effectiveness, and to do this in the context of the university setting from the students' point of view. Using a 25-item instrument, students (n = 912) were asked to rate a teacher of their choice from whom they had taken a college or university course in their recent past. These data were submitted to a variety of analyses, including clustering procedures, to derive various profiles of effective teachers. A detailed description of these procedures follows.

Subjects

The study was conducted in a medium-sized western university with an enrollment of about 11,000 students. The university consists of five colleges, which offer nearly 3,000 courses, and embraces a wide range of teachers with respect to age, sex, experience, subject matter expertise, commitment to teaching, communication style, and the like. The courses themselves represent important curriculum variables and vary widely in terms of content, student task time, learning environment, workload, and difficulty.

Initially, 52 university faculty members from a wide variety of disciplines throughout the university were contacted to acquire permission for us to enter their classrooms to collect data. Twenty-nine faculty members granted us access to one of their classes; two granted access to 2 of their classes. Although an occasional student declined to participate when apprised of the nature and purpose of the study, virtually all students (n = 912) in the 31 classes elected to participate. These students were asked to select a teacher of a university course that they had taken in the recent past; a teacher of their choice, who, in their judgment, could be highly effective, highly ineffective, or anywhere in between; and someone whom they thought they could recall in sufficient detail so that they could respond accurately to specific rating items about that teacher and that teacher's instructional effectiveness.

Of the participating students, 54% (n = 530) of the sample were graduate students, and 46% (n = 382) were undergraduates. The students ranged in age from 18 to 60 years old, with a mean age of 29 (*SD* = 10). They represented 71 different major areas. Two-thirds of the students were female and one-third were male. Students rated courses they were enrolled in as freshmen (20%), sophomores (14%), juniors (14%), seniors (12%), graduate level master's students (23%), and graduate level doctoral students (17%).

The students rated university teachers who taught courses in 152 different subject areas. The classes ranged in size from 1 student to 830 students, with a median class size of 26. Fifty-nine percent of the teachers rated were male and forty-one percent were female.

Items

A large body of literature on teacher evaluation supports the notion that the content of evaluation instruments should be multidimensional. Based on student evaluations and faculty self-evaluations, Marsh (1987) reported consistent identification of nine factors on the Students' Evaluations of Educational Quality (SEEQ): learning/value, enthusiasm, organization, breadth of coverage, group interaction, individual rapport, examinations/grading, assignments, and workload difficulty. In an extensive synthesis of the literature on college students' views toward effective teaching, Feldman (1976) found that stimulation of interest and clarity of presentation were the two most highly related dimensions of good teaching. He also found that the more effective teachers generally were seen as very knowledgeable about subject matter, were organized and prepared for class, and demonstrated enthusiasm. Other less important characteristics, according to Feldman, were related to classroom management. These included items such as course difficulty, workload, and clarity of objectives. Additionally, he found that interpersonal traits such as friendliness, helpfulness, and openness to opinions of others' were considered by students to be important traits of good teachers but not as important as other characteristics. Feldman (1988) compared student and faculty views of effective teaching on the twenty-two instructional characteristics; nineteen were identified in his 1976 review and three new ones were added as a result of this review (motivation, encouragement of self-initiated activities, and research productivity). Other research (for example, Chau & Hocevar, 1994; Koon & Murray, 1995; Marsh & Bailey, 1993; Marsh & Dunkin, 1997) has supported this view of the multidimensionality of effective teaching.

The instrument for this study was developed using items from this extensive literature on student evaluation and effective teaching. From a pool of 56 items selected from this research literature, duplicates and near-duplicates were eliminated, a uniform style of presentation was achieved, and a resultant pool of 25 items remained. These items are presented in Table 1 along with an overall, or global, measure of teacher effectiveness. All items, including the global measure, were rated on a scale from 1 to 9, where 1 was "not at all descriptive," and 9 was "very descriptive."

Administration

University teachers are usually evaluated by students in their classes at the end of every course. Students rate their instructors on the course

TABLE 1
Item Descriptions

Item Number	Item Description
1	The instructor was knowledgeable about subject matter.
2	The instructor communicated effectively.
3	The instructor was enthusiastic about teaching.
4	The instructor was well prepared for each class.
5	The instructor created a comfortable learning atmosphere.
6	The instructor adapted to student needs.
7	The instructor was tolerant of others' ideas and views.
8	The instructor was genuinely respectful of students.
9	The instructor was warm and friendly.
10	The instructor had a good sense of humor.
11	The instructor motivated students to do their best.
12	The instructor was self-confident.
13	The instructor genuinely enjoyed teaching.
14	The instructor was concerned about student learning.
15	The instructor was able to explain material clearly.
16	The instructor identified important ideas.
17	The instructor used good examples to explain concepts.
18	The instructor was accessible outside of class.
19	The assignments were appropriate in amount and level.
20	The evaluation methods were appropriate.
21	The course increased my interest in the subject matter.
22	The course was well organized.
23	The course materials (text, readings, etc.) were worthwhile.
24	The course improved my understanding of concepts in the field.
25	The course was valuable to me.
Global item	Compared with other college or university instructors I have had, I would rate this instructor as extremely effective.

content, the course delivery, and the personal attributes of the instructor. Often students are asked to identify expected course grades, possibly affecting the evaluations. In this study, students were not asked to consider grades, with the expectation that possible confounding effects would be minimized by using courses from their past.

Students were asked to respond to items about college and university teachers of their choice from their recent past. A training session was held for each group of students participating in the study, in an effort to reduce rater errors so that the reliability and accuracy of their ratings would be enhanced. The training consisted of a brief presentation as well as a written summary describing the biases that can affect student ratings (leniency and halo effect were emphasized), and the necessity of providing the ratings relative to a understandable referent. The students then participated in a brief discussion about responses to items of the variety that they would be using. Students were cautioned not to succumb to these rating errors and to rate teachers carefully, honestly, and accurately. Also, interpretation of the scale was discussed, so that students would understand they would be rating teachers in comparison to other university instructors they had encountered. The global item, "Compared with other college or university instructors I have had, I would rate this instructor as extremely effective," was discussed with regard to the referent the student was to use in making the ratings. Because each student rated only one teacher, the student was to use past encounters with other teachers as a reference for making judgments as to this teacher's effectiveness. It may be noteworthy that, in the course of briefing and training the students prior to conducting their rating of a teacher, judging from the nature and depth of the questions they asked, it was obvious the students came to understand that this study was more about what teacher effectiveness is than about simply evaluating teachers. It became quite obvious that they were interested in characterizing the teacher they rated very accurately.

Analyses and Results

A multiple regression procedure and a discriminant analysis were conducted to reduce the 25 items to a more workable number for further analysis. In the regression analysis, the global measure of teacher effectiveness was regressed onto the 25 predictor items. A discriminant analysis was used to find a subset of predictor items that differentiated effective and ineffective teachers. Results from both the regression analysis and the discriminant analysis were used in the cluster analysis to describe effective teachers.

Student ratings ranged from 1 to 9 on all but one of the 25 items and on the global teacher effectiveness item. Responses on the subject matter knowledge item ranged from 2 to 9. Item means and standard deviations are presented in Table 2. Examination of these shows that, on average, the university teachers that students recalled were rated very high on subject matter knowledge ($M = 8.06$) and above 6 on every item.

In the regression analysis, a maximum multiple correlation procedure was used to identify a set of items that, as a group, produced the highest multiple correlation with the global measure. Six items, value of the course, motivating students to do their best, comfortable learning atmosphere, course organization, effective communication, and concern for student learning accounted for 87% of the variability in the criterion of teacher effectiveness (see Table 3). Adding the remaining 19 items to the model increased the explained variance by only 1%; in other words,

TABLE 2
Item Means and Standard Deviations

Item Number	Item Description	Mean	Standard Deviation
1	subject matter knowledge	8.03	1.38
2	effective communication	6.89	2.09
3	enthusiasm for teaching	7.17	1.99
4	preparation for class	7.21	1.99
5	comfortable learning atmosphere	6.53	2.37
6	adapting to student needs	6.17	2.39
7	tolerant of others' ideas	6.59	2.31
8	genuine respect for students	6.96	2.23
9	warm and friendly	6.89	2.32
10	good sense of humor	6.83	2.30
11	motivating students to do their best	6.38	2.37
12	self-confident	7.66	1.66
13	enjoy teaching	7.24	1.94
14	concern for student learning	6.87	2.11
15	clear explanations	6.65	2.30
16	identify important ideas	7.02	2.07
17	use of good examples	6.93	2.09
18	accessible outside of class	6.61	2.11
19	appropriate assignments	6.70	2.13
20	appropriate evaluation methods	6.67	2.27
21	increased interest in subject matter	6.59	2.61
22	course organization	6.69	2.37
23	worthwhile materials	6.49	2.28
24	improved understanding of concepts	6.99	2.56
25	value of the course	6.83	2.46
Global	effective teaching	6.58	2.46

NOTE: $n = 912$ for all items.

TABLE 3

Summary of the Maximum Multiple Correlation Regression

Item Number	Item Description	Total R^2
25	value of the course	0.690
11	motivating students to do their best	0.796
5	comfortable learning atmosphere	0.852
22	course organization	0.861
2	effective communication	0.863
14	concern for student learning	0.869

NOTE: $n = 912$.

nearly all of the variance in teacher effectiveness was captured by the 6 items, and adding the other items increased the explanation very little.

A discriminant analysis was conducted on two groups of teachers so that the variables that best differentiate between effective and ineffective teachers could be found. The teachers scoring high on the global measure of teacher effectiveness were collapsed into one group and were characterized as the effective teachers. These were 589 teachers whom students rated as 7, 8, or 9 on the global item. Teachers who scored low on teacher effectiveness were identified as the ineffective teachers. This group included 149 teachers, who received student ratings of 1, 2, or 3 on the global item. Five items were found to differentiate significantly between the two groups of teachers, accounting for 82% of the variance in the dichotomous dependent variable: value of the course, motivating students to do their best, effective communication, course organization, and genuine respect for the student. Table 4 shows the means and standard deviations for each of the 5 items. The item that was found to be most important in characterizing the effective teachers was value of the course. Ineffective teachers were viewed as those who did not motivate their students to learn. The discriminant function generated using these items predicted group membership 97% correctly for the ineffective teachers and 99% for the effective teachers.

In all, 7 unique items were found to account for teacher effectiveness in the regression and discriminant analyses. Four items, value of the course, motivating students, course organization, and effective communication, were identified in both the regression and discriminant analyses. Three additional items, comfortable learning atmosphere and concern for student learning, from the regression analysis, and genuine respect for students, from the discriminant analysis, were also selected. These 7 items were submitted to clustering procedures in an attempt to find groups of effective teachers that differed in their profiles on these descriptor variables.

TABLE 4

Means and Standard Deviations for Items in the Discriminant Function by Group

		Effective Teachers		Ineffective Teachers	
Item Number	Item Description	Mean	*SD*	Mean	*SD*
25	value of the course	8.17	1.14	2.93	1.96
11	motivating students	7.65	1.37	2.77	1.59
2	effective communication	7.99	1.10	3.98	1.93
22	course organization	7.85	1.33	3.47	2.36
8	genuine respect for students	7.94	1.37	4.16	2.43

NOTE: $n = 589$ for the effective teachers and $n = 149$ for the ineffective teachers.

Only the teachers rated 9[1] on the global item (n = 246) were used in the cluster analysis. These teachers were rated as the most effective, and the profiles of the groups of variables describing them were the primary focus for this study. Scores on the items were not standardized because items were equally scaled. Due to the large number of similarities required in this analysis, both divisive and hierarchical clustering methods were used.

Divisive clustering reduced the 246 teachers into 35 clusters, placing each teacher into only one cluster. These 35 clusters of the 246 highly effective teachers were further clustered in a hierarchical fashion.

The hierarchical clustering procedure combined the two closest clusters and continued the process iteratively until all clusters were reduced to an interpretable set of clusters. Similarity between data points was found using Euclidean distance. Average linkage was used as the clustering method because it is not distorted by outliers and generally maintains the original structure of the data. Five clusters of effective teachers were found, and their profiles will be described beginning with the largest and most dense group.

Profile 1

The largest cluster of teachers (n = 107) may be described as receiving high ratings on all items considered in the analysis. Figure 1 illustrates that each item has a mean score above 8.84 for the teachers in this cluster.

Profile 2

This group of teachers (n = 26) was very similar to Profile 1. They had very high mean ratings on all items except for item 2, effective communication. The mean for this item was 7.50, compared to means of 8.35 and above for all other items. Figure 2 displays the relationships.

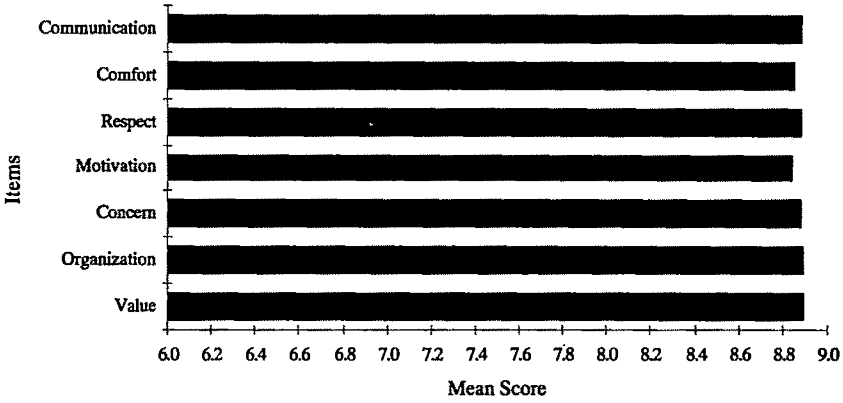

FIG. 1. Profile 1

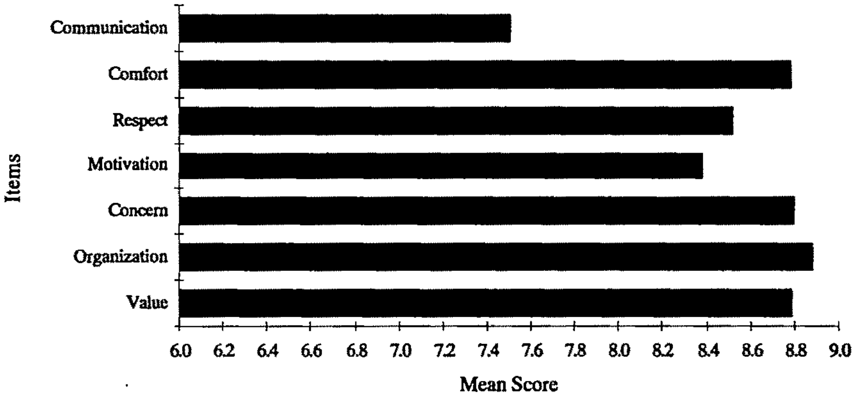

FIG. 2. Profile 2

Profile 3

This third cluster of teachers was characterized as having only a moderately high mean rating, 7.04, on item 22, course organization, as compared to means of the other items. All other item means for these 26 teachers were greater than 8.31. Means for each item are shown in Figure 3.

Profile 4

The Fourth Cluster included teachers who were rated high on all items but had only a moderately high mean rating, 6.58, on item 11, motivating students to do their best. These teachers (n = 19) had mean scores above 8.26 on all items except item 11 (see Figure 4).

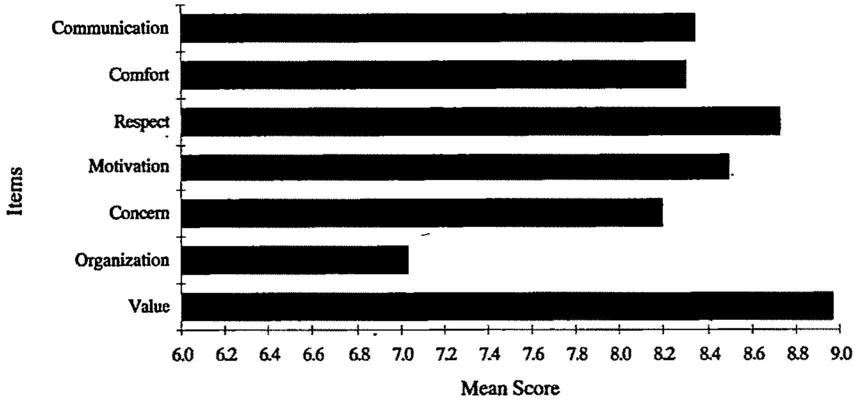

FIG. 3. Profile 3

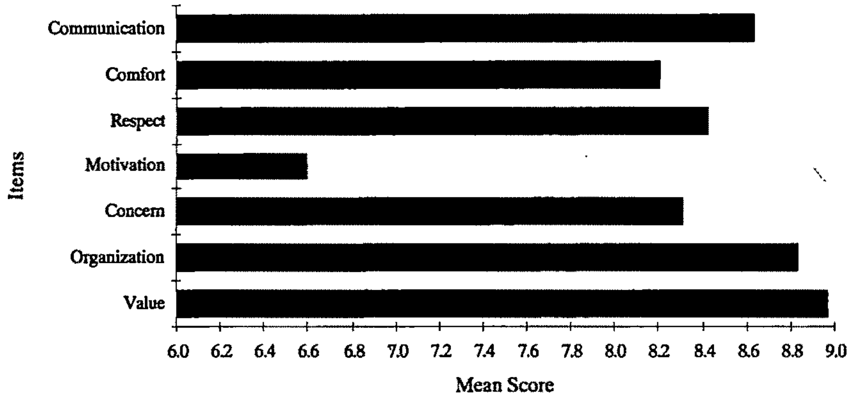

FIG. 4. Profile 4

Profile 5

Seventeen teachers were profiled as having a moderately high mean rating on item 5, creating a comfortable learning atmosphere. The mean score for this item was 6.82, while the other items all had means above 8.24. The means for all 7 items are shown in Figure 5.

The cluster analysis identified five profiles of effective teachers that were very much alike and yet different in specific ways. All 246 teachers were rated high on most of the seven variables. Each profile, with the exception of profile 1, included 1 item on which the teachers were rated substantially lower but still above average, as compared to the other items in the analysis. However, the means for most items were very high.

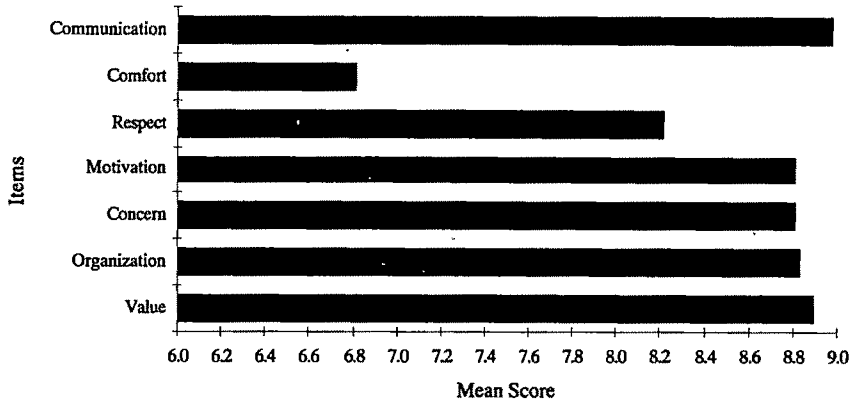

FIG. 5. Profile 5

Fifty-one teachers in this high group were not included in any of the five clusters because their profiles were unique. Although these teachers might be considered outliers, it is possible that instead they represent other clusters that were poorly sampled. However, these 51 teachers could be characterized as being rated *very* low, even as low as 1 in some cases, on up to 3 of the 7 items, yet the teachers were rated 9 overall on the global item. For all of these 51 teachers, it should also be noted that they were rated 9 on at least 2 other items.

Summary and Discussion

Is an effective teacher one who encourages students to think for themselves or one who provides structure, organization, and varied examples of concepts? Is a teacher who is organized but lacks enthusiasm perceived as being as effective as one who is enthusiastic yet provides little structure? The research literature on teacher effectiveness has clearly identified many of the important ingredients of good teaching (Perry & Smart, 1997). The findings of this study may serve to strengthen theoretical models and reveal some potentially important and intriguing possibilities.

Regression techniques produced a model of teacher effectiveness that had a high degree of predictive power with a small number of items. It was not a surprise that effective communication, a comfortable learning atmosphere, concern for student learning, student motivation, and course organization were found to be highly related, as a group, to the criterion measure of teacher effectiveness. This finding supports past and current research in this field. However, it was not expected that the value of the course would emerge so strongly as a predictor of teacher effectiveness in the analysis. This item was highly correlated with the global measure for graduate students separately, undergraduates separately, and the groups combined. It entered the regression model first and was not removed at any step of the analysis. It also entered the discriminant model first in differentiating between effective and ineffective teachers. It was rated very high in each of the identified profiles of effective teachers. In this study, the worth of a course for the university students was the most important predictor of teacher effectiveness and this may be one of the most significant findings to emerge from this investigation. It is possible that course value was so important because, as time passed, students became much more aware of its usefulness. Recognizing that students believe that the relevancy and value of a course are so important may provide college and university teachers with a valuable insight into understanding effective teaching.

The cluster analysis clearly profiled the highly effective teachers (n = 246) into five natural groups. The items used in the cluster analysis were a subset of 7 of the original 25 course and teacher characteristics. A very large group of teachers (n = 107) was rated high, 8.84 and above, on all 7 items. Four smaller groups of teachers, ranging in size from 26 to 17, were each rated moderately high on 1 item and very high on all the others. Three items were not rated lower in any of the clusters; genuine respect for students, concern for student learning, and value of the course were consistently rated very high. Teachers who were recognized as highly effective in this study, then, were rated very high on at least 6 of the 7 items but were rated, on average, as low as 6.6 on the 7th item, and still considered very effective by students.

Results from the clustering procedures will likely provide the greatest impetus for further research in this field. To be rated as effective, a teacher had to be rated very high on genuine respect for students, concern for student learning, and value of the course. Very effective teachers are not necessarily rated high on every other important variable; they can have some deficiencies. McKeachie (1997), in his summary commentary on several articles addressing the validity of student ratings, suggested that "effective teachers come in all shapes and sizes" (p. 1218). A definition of teacher effectiveness must take this into account, and measurement of the construct may not be captured well by an additive model. This analysis illustrated that effective teachers were generally regarded by students as high on all variables included in this analysis but not equally high on all important characteristics. It appears that effective teachers can compensate for deficiencies in one or two areas by demonstrating outstanding skills in other areas. For example, one teacher in cluster 3 was rated only a 4 on organization with very high ratings on the other 6 items and was perceived to be a highly effective teacher. Even though organization was generally seen as an important correlate of effective teaching, organization is not a necessary characteristic if a teacher is excellent in other aspects. According to the students in this study, teachers were considered effective despite a single low rating on a characteristic that was seen as very important.

Finally, the inclusion of the course value item in this study and its prominence in the analyses deserves additional comment. Asking students to rate teachers after a course has been completed allows students to reflect on the effectiveness of the teacher to deliver a valuable course. To our way of thinking, regardless of how difficult or mundane the course content is, the truly effective teacher of that course is assuming some responsibility for making it a valuable course for the student. It may well be that ratings collected *as courses end* show a substantial separation between overall course value and overall teacher effectiveness (Marsh, 1984), but ratings collected *after courses are completed,* show that student raters do not disentangle these two items to the same degree.

Notes

[1] In the discriminant analysis conducted prior to the clustering procedure, we used cut points that combined teachers rated overall 1–3 and 7–9 into the groups labeled "ineffective" and "effective," respectively. We did this because the focus in this analysis was on the identification of *items* that discriminate between persons at opposite ends of the effectiveness continuum. The choice of cut points is not overly critical here; our rationale was that 7, 8 , and 9 represent degrees of effective teachers, with 7 representing "well above average" to 9 representing something akin to "outstanding," all being effective to some degree. In the clustering procedure, however, we used only the teachers rated by their students as 9s, because we were focussing on definitional matters that are likely anchored best by teachers at the very highest point on the continuum of effectiveness.

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Technology Transfer from University-Based Research Centers

The University of New Mexico Experience

Since the 1980s American research universities have become increasingly involved in such technology transfer activities as technology business incubators (Mian, 1997), technology licensing offices (Massing, 1996), and technology parks. Another expression of "academic capitalism" (Slaughter & Leslie, 1997) in facilitating the transfer of technological innovations in order to contribute to local economic development (and to acquire increased funding for research) is through university-based research centers. The number of these organized research units has increased rapidly in recent decades (Cohen, Florida, & Goe, 1994). Research centers obtain much of their funding from sources external to the university and serve a boundary-spanning function in facilitating flows of information and resources between the university and its environment.

The present article reports findings from an investigation of technology transfer from all 55 research centers at one research university, the University of New Mexico (UNM), which is located in technology-rich

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Northern New Mexico. We gathered data from each research center in order to answer the following research questions.

1. What is the nature of the typical research center at the University of New Mexico?
2. Why have the number of research centers, and their total funding, been increasing rapidly at the University of New Mexico during the 1990s?
3. Why are research centers founded?
4. What is the role of the director in creating and maintaining a research center?
5. How do university-based research centers transfer technology to private companies and to other organizations?
6. What determines the effectiveness of research centers in reaching their objectives?

Past Research on Research Centers

Considerable research has been conducted on various types of university-based research centers in science and engineering that are funded (at least initially and partially) by the National Science Foundation (for example, Eveland, 1985; Feller & Roesner, 1995; Gibson & Harlan, 1995; Gray, Gidley, & Koester, 1988; Gray, Hetzner, Eveland, & Gidley, 1986; Gray, Johnson, & Gidley, 1986; Grillon, 1995; Morgan, 1993; Tash & Stahler, 1997). However, research centers supported by the National Science Foundation (NSF) comprise 1% or 2% of all university-based research centers (at the University of New Mexico only 1 of the 55 research centers was NSF-initiated). Much less scholarly research attention has been directed to university-based research centers in science and engineering that are not supported by the NSF. A 1990 nationwide survey of university-industry research centers in U.S. universities estimated that 12,000 professors and 22,300 doctoral-level researchers were involved, with total funding of $4.12 billion (Cohen et al., 1994). These are underestimates because the study by Cohen et al. only included research centers in science and engineering, which on the basis of available data we estimate are approximately half of all university-based research centers today. Tash and Stahler (1997) gathered survey data from 287 research centers that received industrial support at 114 of the 150 leading U.S. research universities. Most of the 287 research centers of study were in science and engineering fields.

Our literature search disclosed no investigation of all the research centers at a single university, including those organized research units in the social sciences, medicine, education, law, and other fields.

Technology is information put into use in order to carry out some task. *Technology transfer* is the application of information into use (Rogers, 1995). The information that is transferred results from research that is conducted, perhaps in order for it to be applied to the development and commercialization of new or improved products or services that are sold in the marketplace by private companies (Matkin, 1990). The technology transfer process usually involves communication between (1) a source of technology that possesses specialized technical skills, and (2) receptors who do not possess these specialized skills and who cannot create the technology themselves (Williams & Gibson, 1990). "That which is transferred often is not really technology but rather a particular kind of knowledge that is a precursor of technology" (Matkin, 1990, p. 5). We suggest that the essence of what is transferred is a *technological innovation*, an idea perceived as new by an individual or organization (Rogers, 1995). Technology transfer is a complicated process, as attempts to trace the technology transfer process from university-based research centers to receptor organizations have shown (Grillon, 1995; Harmon, et al., 1997; Samsom & Gurdon, 1997). For example, Gibson and Harlan (1995) found that faculty members in university-based research centers defined "technology transfer" as distributing publications like journal articles, whereas their counterparts in private companies defined "technology transfer" as the commercialization of a technological innovation.

Technology Transfer Mechanisms from Research Universities

Research centers have served as catalysts for certain of the fastest-growing research universities in the United States (Stahler & Tash, 1992, 1994). For example, MIT (Massachusetts Institute of Technology) was transformed into a major research university in the 1940s and 1950s by its research centers, which were mainly funded by grants and contracts from the Federal Government and from private companies. The rise of research centers during the decades after World War II "pushed MIT into the forefront of American research universities" (Geiger, 1990). One important impact of MIT's research centers came about through their spin-offs. According to a study conducted by BankBoston (1997), MIT graduates and faculty have spun-off 3,998 high-technology companies, which employ 1.1 million people and have annual worldwide sales of $232 billion. If they formed an independent nation, an economy composed of the MIT spin-offs would be the 24th largest national economy in the world!

The importance of spin-offs as a means of technology transfer was emphasized by Roberts and Malone (1996), who stated: "The technology-based spin-off appears potentially to be a powerful and useful approach for transferring technology from a research and development organization into a commercial organization." A *spin-off* is a new company that is formed (1) by individuals who were former employees of a parent organization, and (2) a core technology that is transferred from the parent organization (Rogers & Steffensen, 1998). A spin-off is one mechanism for technology transfer, because it is usually formed in order to commercialize a technology that originated in a government R&D laboratory, a university, or a private R&D organization.

The rate of spin-off activity from universities varies widely by region in the United States. The BankBoston (1997) study, mentioned previously, found that 150 new firms per year spun-out of MIT during the 1990s. This spin-off rate is exceptional among U.S. research universities, but may be matched by Stanford University in Northern California's Silicon Valley (Rogers & Larsen, 1983), and perhaps is now being approached by the University of Texas at Austin (Smilor, Gibson, & Dietrich, 1990; Brett, Gibson, & Smilor, 1991; Gibson & Rogers, 1994). Why do most other research universities have many fewer spin-offs? The agglomerative effects of the availability of venture capital, access to technological innovations, and infrastructural support and services are important factors, along with the local entrepreneurial climate for spin-offs (Rogers & Steffensen, 1998). When earlier spin-off successes are glamorized by the popular press in a region (for example, Steve Jobs in Silicon Valley, Michael Dell in Austin, and Bill Gates in the Seattle area), R&D workers may be encouraged to become entrepreneurs (Roberts, 1991). Once a critical mass of spin-offs have been founded in the region around a research university, future spin-offs are likely to occur in that region.

A research university that plays a role in creating such a regional technopolis (that is, a high-technology cluster) benefits in various ways: Often the university owns equity in successful spin-out companies. Jobs for university graduates may be available with local companies, and these companies may provide research funding to university researchers. In some cases, for example, Stanford University, the University of Texas at Austin, and the University of Utah, the new companies may locate in a university research park and pay lease fees to the university. So there is generally a synergistic relationship between the research university and the surrounding technopolis that it helps create.

There are also potential conflicts and problems involved in the technology transfer activities of a research university. The culture of business venturing may clash with the scientific culture of the university. Commercial considerations may prevent, or delay, the publication of scientific research findings (Roberts & Malone, 1996). Further, some faculty express concern that the economic benefits resulting from high-technology spin-offs may distract the university from its teaching responsibilities and from its role in conducting basic research. Finally, conflicts may arise between the university and its spin-offs over the intellectual property rights to technological innovations.

Technology Transfer in Northern New Mexico

The Albuquerque area in Northern New Mexico has an abundance of technology, as a consequence of the activities of three Federal R&D laboratories (Los Alamos National Laboratory, Sandia National Laboratories, and the U.S. Air Force Phillips Laboratory), which employ more than 16,000 R&D workers and have an annual budget of $2 billion), plus the University of New Mexico (with about 3,000 faculty). However, the rate of high-tech spin-off activity in New Mexico is relatively low, due to a lack of venture capital, entrepreneurs, and effective mechanisms for technology transfer (Radosevitch, 1995). A 1996 investigation identified 71 spin-offs, most of which had occurred in the previous three or four years, from the three Federal R&D laboratories in Northern New Mexico (Carayannis, Rogers, Kurihara, & Allbritton, 1998). State and local officials in New Mexico and Albuquerque are committed to developing a technopolis in their region. Administrators at the University of New Mexico expect their institution to play a major role in this development and have created a technology licensing office, an incubator, and a science and technology park, all as part of a science and technology corporation. In addition, the university seeks to encourage the founding and growth of university-based research centers.

We studied all of the research centers at the University of New Mexico, a rapidly growing research university in the 1990s. UNM's external research funding has increased rapidly in the past 10 years, with most of this increase occurring through UNM's 55 research centers. Research centers are a unique form of university organization in several respects: (1) they are interdisciplinary, involving faculty members from various academic departments; (2) they are boundary-spanners, facilitating a flow of information and other resources across the university's boundary; and (3) they are temporary organizations, at least compared to university departments, and provide a degree of flexibility in an otherwise stable university structure. The director of one research center at the University of New Mexico stated that research centers "Fill in the spaces between the fingers of one's hand," with the fingers representing academic departments. The high degree of flexibility of research centers is indicated by the fact that during 1996–1997, while we were studying the 55 research centers at the University of New Mexico, 3 new research centers were formed, while 2 ceased operation.

Methodology

We identified 55 research centers at the University of New Mexico, obtained their annual reports and other written materials, and conducted personal interviews with the director (and/or the associate director) of each research center. We began identifying all of the research centers at UNM by contacting the office of the Associate Provost for Research, who identified 20 research centers (mainly the larger research centers that report directly to this office). The UNM telephone directory and a national listing of university-based research centers identified an additional 20 research centers at the University of New Mexico. Most of these 20 centers were relatively smaller research centers that report to a college dean or, in a few cases, to a department chair. We identified additional research centers at UNM through our personal interviews with research center directors, by showing each director a list of research centers and asking if the director knew of others. We are confident that we identified all of the research centers that existed at UNM in 1996-1997.

The actual number of research centers at the University of New Mexico was surprising to most knowledgeable individuals like university administrators and the directors of the research centers (to whom we gave a list of the 55 research centers). At UNM, and other research universities, most research centers keep a low profile, at least in comparison to academic departments (UNM has a total of 51 academic departments).[1]

Measuring the Effectiveness of Research Centers

Effectiveness is defined as the degree to which an organization fulfills its objectives. Based on our personal interview with the director and on other materials about our research centers of study, we identified the objectives of each research center. Eight dimensions of effectiveness were shared by most of the 55 UNM research centers (Table 1). Data about each dimension were gathered for the 55 research centers.

The six authors of the present paper rated each of the 55 research centers on a 5-point scale (0-4) on these eight dimensions, using data from the personal interview with the director and other materials about each research center. The eight effectiveness dimensions are: (1) technology transfer, (2) training and placing former graduate students (and staff) in outside employment, (3) total budget, (4) research productivity, measured in number of publications, (5) staff size, (6) length of existence (in

TABLE 1

The Correlations of 8 Effectiveness Scale Items by Six Raters for 55 Research Centers at the University of New Mexico ($N = 55$).

	Intercorrelations of Effectiveness Scale Items								
Effectiveness Scale Item	#1	#2	#3	#4	#5	#6	#7	#8	#9[a]
1. Technology transfer	—	0.291*	0.388**	0.382**	0.308*	0.179	0.354**	0.195	0.455**
2. Graduate students placed in jobs		—	0.446**	0.671**	0.757**	0.198	0.612**	0.288*	0.706**
3. Size of budget			—	0.609**	0.606**	-0.015	0.480**	0.183	0.582**
4. Research productivity (in publications)				—	0.780**	0.059	0.602**	0.270*	0.726**
5. Staff size					—	0.281*	0.501**	0.353**	0.815**
6. Existence (in years)						—	0.045	-0.010	0.173
7. Director's role							—	0.178	0.595**
8. Departments involved (multidisciplinarity)								—	0.304*
9. Total effectiveness scores (the eight dimensions combined)									—

[a] The item total score correlations were adjusted by removing the effect of the inclusion of each scale item in the total scores.

* Correlation is significantly different from zero at the 0.05 level. ** Correlation is significantly different from zero at the 0.01 level.

years), (7) the director's role, and (8) the number of departments represented in each research center (an indicator of the degree of multidisciplinarity of the research center).

We intercorrelated the ratings of the six raters on the eight dimensions of effectiveness. All 65 correlations were positive, and only 12 correlations (19%) were not significantly different from zero, indicating a general agreement among the six raters in how they coded the 55 research centers on the eight dimensions of effectiveness. The six ratings were then combined for each dimension. The 15 intercorrelations among the six raters for the effectiveness of the 55 research centers were all significantly different from zero. Thus, we combined the effectiveness rating across the six raters (these are the total effectiveness scores in Table 1).

The eight dimensions are positively intercorrelated, with all but 9 of the 28 correlations significantly different from zero (see Table 1). Seven of the eight dimensions of effectiveness are significantly correlated with the total effectiveness scores for the 55 research centers (length of existence in years was positively, but not significantly, related to total scores. The total effectiveness scores ranged from a low of 8.20 to a high of 29.32 (a score of 32 was possible) for the 55 research centers.

#1. The Typical Research Center

Research Question #1 asked about the nature of the typical research center at UNM. It has an annual budget of $2.7 million, includes faculty from four departments, and has 33 employees, including faculty, staff, and undergraduate and graduate student employees, some of whom may work on a part-time basis. The director is almost always a faculty member, who usually works full-time (or almost full-time) in the research center. Most of the research centers are located in buildings on the main campus of the university, but several of the larger research centers are housed in new buildings located in the UNM Science and Technology Park, about two miles from the main campus.

Although we have described the average research center (above), the 55 research centers varied very widely in their size, degree of multidisciplinarity, and other characteristics. For instance, the 55 research centers ranged in their number of employees from one person (the director) to 385, the number of departments involved in a research center varied from one (for 12 research centers) to 16, and the annual budget ranged from a low of $50,000 to a high of $70 million. This extreme variation should be kept in mind in our attempt to describe the typical research center at UNM.

#2. The Increasing Number of Research Centers

Research Question #2 inquired why the number of research centers and their total funding have increased in recent years. The University of New Mexico has certain special advantages, and several limiting factors, that have affected its development as a research university. New Mexico is a sparsely populated (1.5 million people) state that ranks 44th among the 50 states in per capita income. Faculty salaries at the University of New Mexico are somewhat below those of its peer institutions. UNM has a large undergraduate enrollment (its total enrollment is about 25,000 students, including its five branch campuses) and a strong commitment to undergraduate education.

The New Mexican economy heavily depends on the Federal Government's funding of several military bases and the three large Federal R&D laboratories, which provide a unique advantage to the university in securing external research funding. Los Alamos National Laboratory (LANL), located about 90 miles from Albuquerque, and Sandia National Laboratories (SNL), located in Albuquerque, each have about 7,500 employees and annual budgets of approximately 1 billion dollars (Rogers et al., 1998). Collaboration of UNM scholars with these Federal R&D laboratories gives the university an edge in attracting Federal funding, especially in engineering, physics, chemistry, mathematics, and other fields related to the work of these Federal weapons laboratories.

During the 1996–1997 fiscal year, UNM attracted 164 million dollars in funded research, double that of ten years previously (Figure 1). Much of this funded research at UNM ($145 million, or 89%) is conducted by the 55 research centers, with the remainder carried out by faculty investigators in disciplinary departments. According to the National Science Foundation (NSF), the University of New Mexico was the fastest-growing U.S. research university in total R&D expenditures per year during the period from fiscal year 1990 to fiscal year 1995. The largest sources of research funding were Federal agencies (59%), the state government of New Mexico (12%), and private companies (10 percent). The Federal R&D laboratories provided 7% of the research funding at UNM in the 1996 fiscal year.

Seven of the 55 research centers that we studied at the University of New Mexico received multicenter funding from Federal Government agencies, which was provided to create a network of university-based research centers at various universities. Some 13 of the 55 research centers conduct research dealing with Native Americans or Hispanics, a unique opportunity in a tricultural state like New Mexico (where 9% of the pop-

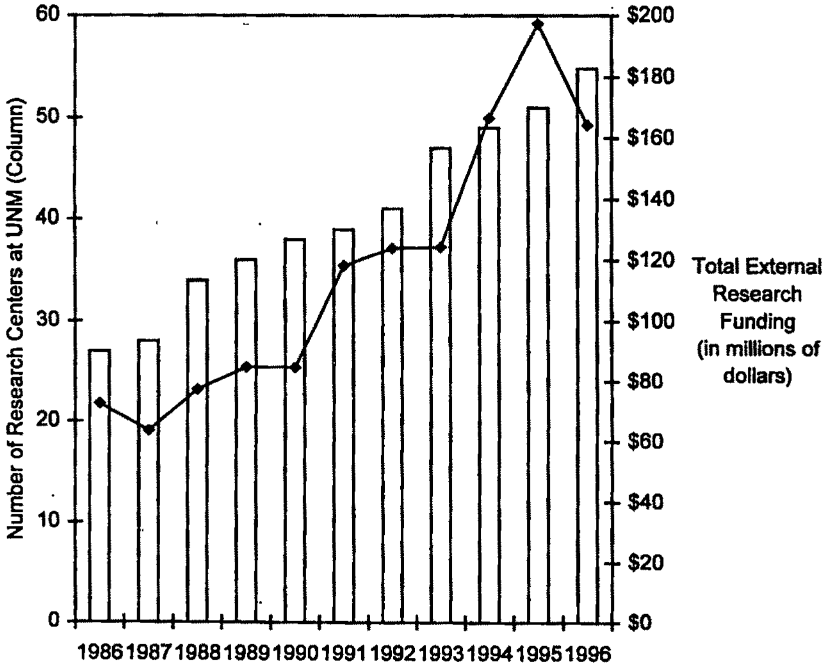

FIG. 1. Total External Research Funding and the Number of Research Centers at the University of New Mexico. SOURCE: Personal interviews with the directors of the 55 research centers at the University of New Mexico.

ulation is Native American, and 31 percent is Hispanic). An example is the New Mexico Tumor Registry (NMTR) funded by the National Cancer Institutes Program for Surveillance, Epidemiology, and End Results (SEER), in order to investigate cancer rates among Hispanics and Native Americans in New Mexico, so that these rates can be compared with ethnic groups who live in other states.

A key individual in UNM's rise as a research center was Dr. Paul Risser, who came to UNM in 1987 to serve as provost and vice president for research (the administrator responsible for overseeing the university's funded research and its research centers). Risser strongly encouraged the founding of university-based research centers as a means of increasing the university's total research funding and hence its academic status as a research university. On various occasions he called together faculty members from several departments in order to establish a new research center. Risser also provided university overhead funding to newly founded research centers to cover their start-up costs. Risser left UNM in late 1992 to become the president of another university. Some 5 of the 14 research centers founded from 1987 to 1992 at UNM were established with encouragement from Risser; these 5 are among the largest and most effective today.

Thus a key factor in the growth of the University of New Mexico as a research university was its expansion of multidisciplinary research centers, which attracted increasing amounts of external funding. The 6 largest research centers attracted 65% ($107.5 million) of the total amount of external funding in 1996–1997. Many of the University's research centers take advantage of the presence of the three Federal R&D laboratories in New Mexico, and of the state's tricultural makeup.

#3. Why Research Centers Are Founded

Research Question #3 asked why research centers are founded. Some 32 of the 55 research centers (58%) were founded by an entrepreneurial faculty member due to the availability of research funding from an external source. For instance, the Center for High-Technology Materials (CHTM) and the Center for Non-Invasive Diagnosis were begun in 1983 under a special funding program of the New Mexico state legislature (which at that time had surplus funds from a new state severance tax on coal, gas, and uranium mining). The Center for Micro-Engineered Ceramics (CMEC) began in 1988, when it was awarded start-up funds by the National Science Foundations Industry/University Cooperative Research Centers Program. The largest research center at UNM, the High-Performance Computing Education and Research Center (HPCERC), was funded in 1993 in response to a competitive proposal by UNM to the U.S. Air Force Phillips Laboratory (located in Albuquerque).

Several research centers at UNM were founded by faculty members in order (1) to conduct multidisciplinary study (14 research centers, or 25%) or (2) to have a greater degree of autonomy from an academic department (10 research centers, or 18%).[2] Some 78% of the research centers at UNM involve more than one department. An example is the Center on Alcohol and Substance Abuse Addictions (CASAA), which began as a 30-member faculty committee established by Provost Paul Risser in 1988 to explore possible collaboration between the social sciences and the Medical School in conducting research on, and treatment of, substance abuse. The director of CASAA, Dr. Philip May, and its several principal investigators emerged from among the original 30-member committee. CASAA had a total budget of $7 million in 1996-1997 and involved faculty from four main departments.

#4. The Role of the Director

The director of a university-based research center is a particularly key figure in its operations (Eveland, 1985). The director must be able (1) to motivate his/her research staff in collaborative research activities, (2) to obtain funding, and (3) to conduct funded research. This role is very demanding, as past research has indicated. "A strong leader is required to establish and run a center" (Gray, Hetzner, Eveland & Gidley, 1986, p. 175). Stahler and Tash (1994) concluded from their study that "Center directors tend to have greater authority than department chairs typically do, and, therefore, centers bear the imprint of the director's philosophy, interests, and goals more directly than is the case with academic departments." An effective grant-getter must also be a respected scholar who is at the cutting edge of research in his or her scientific specialty. An effective director must have a nose for identifying research funding and must encourage the other researchers in his or her research center to generate research proposals.

Some 15 of the 55 research centers at UNM, especially those of smaller size, are essentially "one-person shows," with the director alone mainly responsible for the scientific agenda of the research center, for raising funding, and for recruiting research staff, who are usually graduate research assistants and other research staff. The director's role may be even more demanding in a research "super-center" with a budget of several million dollars per year or with more than 100 employees.

Research centers face a greater degree of financial uncertainty than do academic departments. They do not have a fixed annual budget and often must struggle to find core funding from external sources to the university. For example, one director of a research center at UNM told us that he did not have enough funding to meet the next month's payroll, although he was confident that he would obtain it. This level of funding uncertainty would be unimaginable for an academic department. A research center may attract several types of funding:

1. Core funding from Federal Government agencies or other sources.
2. Responding to requests-for-proposals from a government agency, private foundation, or other sources.
3. The partial return of university overhead from funded research projects (this funding strategy is particularly used during the first five years of a new research center at UNM).
4. Support from private companies, who may become regular contributors to a research center through an annual membership fee.
5. The sale of goods or services.

Some research centers, in order to survive, have broadened, narrowed, or shifted the directions of their research agenda over time. An example is the Center for High-Technology Materials (CHTM), which originally focused on lasers and optoelectronics research when it was founded in 1983. In 1988 CHTM added another research specialty, semiconductor electronics for information and control, when it was funded as a SEMATECH[3] Center of Excellence. Another example is the Research Institute for Assistive and Training Technologies (RIATT), originally established as a research center for assistive technologies (for disabled individuals) in 1988 through a large Federal research grant. However, after it became one of the 21 New Media Centers (a network of university-based research centers) in the United States in 1994, RIATT expanded its activities to distance education, educational technology, and multimedia development, while also continuing the original focus on assistive technologies.

The directors of several research centers mentioned that the different disciplines involved in their research center had difficulty in communicating with each other about research topics. Each discipline has its own scientific language. When two or more disciplines are involved in a research center, as is most often the case, special efforts must be made to find a common discourse. This problem was especially important in large research centers that involved multiple disciplines.

#5. Technology Transfer

Research Question #5 asks how university-based research centers transfer technology to private companies and other organizations. The stated objectives of almost all research centers at UNM include technology transfer. Usually, however, their technology transfer activities are only to produce research publications, such as articles in scientific journals (Figure 2). Some 39 of the 55 research centers (70%) reported using this means of technology transfer, although they frequently acknowledged its ineffectiveness, because scientific journal articles are written for fellow scientists and often are not effective in reaching practitioners.

A second means of technology transfer, by 21 of the 55 research centers (38%), was to incorporate technological innovations resulting from funded research into university courses and other educational activities. Yet another important type of technology transfer occurred when former graduate students and/or other research staff were employed by private companies and other organizations, such as those providing funding to the research center (this means of technology transfer was reported by 19 of the 55 research centers). In 1996–1997, 503 graduate students

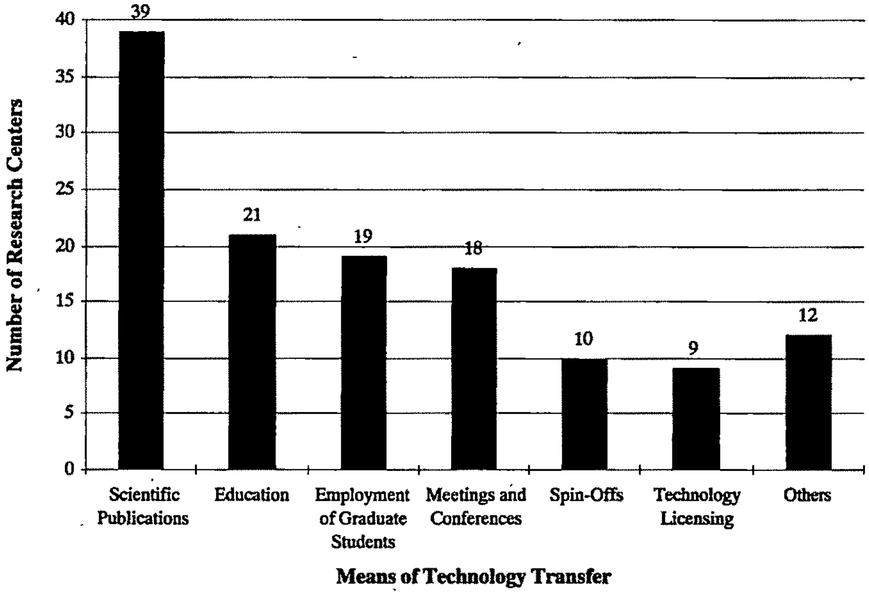

FIG. 2. Means of Technology Transfer Utilized by 55 Research Centers at the University of New Mexico (multiple responses were possible). SOURCE: Personal interviews with the directors of the 55 research centers at the University of New Mexico.

were employed as research assistants at UNM, mainly with external funding provided through research centers. The transfer of these individuals after their graduation is an important means of technology transfer from the research center in which they were employed.[4] Meetings and special conferences, usually held on an annual basis, were reported as a means of technology transfer by 18 of the 55 research centers (33%).

Spin-off companies are yet another means to commercialize a technological innovation resulting from research at a university-based research center. As defined previously, a *spin-off* is a new company that is created when (1) individuals and (2) a technology leave a parent organization in order to establish a new company. We identified 19 spin-offs from 10 of the 55 research centers at UNM, most of which had occurred during the 1990s. One spin-off is SCB Technologies, Inc., which spun-off from the Center for High-Technology Materials (CHTM). After CHTM and Sandia National Laboratories (SNL) developed a semiconductor bridge igniter that was used as an explosive fuse, researchers sought to commercialize this semiconductor bridge technology. SCB Technologies was founded in 1987 and by 1997 had grown to five employees and had approximately one million dollars in sales per year.

The Asian Technology Information Program (ATIP) is a spin-off from the New Mexico U.S.-Japan Center. ATIP is a non-profit organization that collects and disseminates Asian technology information to U.S. and European organizations in order to promote collaboration with Asian countries. ATIP was founded by Wallace Lopez, director of the New Mexico U.S.-Japan Center, and by David Kahaner, an employee of the National Institute of Standards and Technology (NIST) in Tokyo in 1995. Two years later, ATIP had offices in eight Asian countries, 30 employees, and annual sales of about $2 million.

Nanopore, Inc., was founded in 1994 as a spin-off from the Center for Micro-Engineered Materials, CMEM (then the Center for Micro-Engineered Ceramics, CMEC). The founders were the director and associate director of CMEC. Nanopore has obtained capital from its own profits, and the company has not borrowed money or acquired venture capital, thus pursuing a slower-growth strategy. Dr. Douglas Smith, the technology originator and co-entrepreneur, was the founder and director of CMEM from 1988 to 1993, the year in which he left UNM to start Nanopore. By 1998, CMEM and Nanopore had little connection, although Professor Smith continued to advise graduate students at UNM, many of whom are also research assistants at CMEM. Nanopore produces a porous material for semiconductors. The spin-off grew quickly to 15 employees, a number that stabilized after the first year of the company's operation. Nanopore expanded via joint ventures with two large microelectronics companies, and has had one spin-off.

The most frequent means of technology transfer by the 55 research centers, as reported previously, was via research publication (mainly journal articles), which could potentially reach the largest number of individuals with the least effort per individual reached. More targeted methods of technology transfer, like meetings/conferences and spin-offs, were less frequently used but had the potential for greater impact per individual reached.[5]

#6. The Effectiveness of Research Centers

Research Question #6 asks what determines the effectiveness of research centers in achieving their objectives. The total effectiveness scores of the 55 research centers, whose measurement was explained previously, ranged from 8.2 to 29.3 (possible scores could range from 8 to 32), with an average score of 16.5. The 6 research centers with the highest total effectiveness scores are all large in size, with more than 100 staff members and multimillion dollar budgets. On the other hand, the 7 research centers with lowest total effectiveness scores are all small in size, with fewer than five staff members per research center. Staff size is the dimension most highly related (r = 0.815) with total effectiveness scores (see Table 1).

Research centers in the UNM School of Engineering have the highest average total effectiveness scores ($\bar{X}$ = 18.1). Four of the five most effective research centers at UNM were in the School of Engineering. The research centers in the natural sciences ($\bar{X}$ = 17.8), and in the UNM School of Medicine ($\bar{X}$ = 17.7) are also relatively effective. The research centers founded at the initiative of former Provost Paul Risser have higher average total effectiveness scores ($\bar{X}$ = 25.8) than do other research centers ($\bar{X}$ = 15.6). The 10 research centers that have established one or more spin-off companies ($\bar{X}$ = 22.8) and research centers receiving multi-center funding from the Federal Government ($\bar{X}$ = 21.7) are also relatively more effective.

Table 2 shows that the relatively more effective research centers were characterized by larger size (whether measured in annual budget or number of staff), a higher degree of multidisciplinarity, and more intensive means of technology transfer.

Conclusions

The purpose of university-based research centers is to conduct scholarly investigations of a multidisciplinary nature, with funding provided

TABLE 2

Characteristics of More Effective, and Less Effective, Research Centers at the University of New Mexico.

	Effectiveness of Research Centers			
Characteristics	Less (N = 18)	Medium (N = 19)	More (N = 18)	Total (N = 55)
1. Average annual budget (in thousands)	$337	$913	$6,872	$2,652
2. Average number of academic departments involved	2.2	4.6	5.0	4.0
3. Average number of staff members	7	17	76	33
4. Average number of funding sources (Federal government, state government, private companies, university, other)	1.8	1.4	2.2	1.8
5. Average age of the research center (in years)	15	19	15	17
6. Percentage of research centers saying external funding is a reason for founding	44%	58%	67%	56%
7. Percentage of research centers saying publications are a means of technology transfer	72%	53%	89%	71%
8. Percent of research centers with a spin-off	0	11%	44%	18%

NOTE: Most of the eight characteristics of the 55 research centers were included in the eight dimensions in which the research centers' total effectiveness scores were computed; therefore it is hardly surprising that the eight characteristics differ on the basis of less effective, medium, and more effective research centers.

by government agencies, by private companies, or other external sources. The number of research centers at the University of New Mexico increased, and the annual budget for funded research doubled, in the ten years from 1986 to 1996.

University-based research centers are usually founded by entrepreneurial faculty members (1) due to external influences on the University of New Mexico, such as the availability of research funds, (2) to respond to the need for multidisciplinary study, and (3) to obtain greater autonomy from unidisciplinary academic departments. The director is a particularly key figure in a university-based research center, and the director's role is multifaceted and demanding. The director must organize collaborative research activities, obtain funding, conduct funded research, and publish the results. Research centers are relatively more vulnerable in a financial sense than are academic departments, which can count on more stable funding.

University-based research centers seek to disseminate their research results outside of the university, especially to their funding organizations. Technology transfer from university-based research centers occurs through: (1) research publications, like scientific journal articles, (2) the incorporation of research findings into university courses, (3) the employment of former graduate students and/or research staff by private companies and other organizations, and (4) establishing spin-offs. Ten of the 55 UNM research centers established 19 spin-offs, most during the 1990s.

The size of a research center is highly related to its effectiveness, as measured by an eight-item measure of effectiveness, defined as the degree to which an organization fulfills its objectives. We found that more effective research centers were characterized by a greater degree of mulitdisciplinarity, and by the use of more intensive means of technology transfer.

Research centers represent an important linkage between the research university and its environment. Research funding flows to university researchers via this relationship, and research results in the form of technologies are transferred from the research centers. Further understanding of the role of university-based research centers is needed.

Notes

[1] Similarly, at Michigan State University the number of research centers ($N = 105$) was slightly greater than the number of academic departments ($N = 104$) in 1996–1997 (personal communication, Professor James W. Dearing).

[2] Multiple reasons for the founding of a research center were provided in some cases.

[3] SEMATECH is an R&D consortium of 14 large microelectronics companies, located in Austin, Texas (Gibson & Rogers, 1994).

[4] Cohen et al. (1994) reported that each of the 511 university-based research centers in science and engineering fields that they surveyed produced an average of four PhDs per year.

[5] This classification of technology transfer mechanisms as passive versus targeted was used by Gibson and Rogers (1994) in their investigation of technology transfer from the MCC, a microelectronics R&D consortium in Austin, Texas.

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Dean Lillard
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Getting to the Ivy League

How Family Composition Affects College Choice

Introduction

A primary tenet of American society revolves around access to positions of influence and equality of opportunity. Educational attainment provides the central vehicle through which upward mobility can occur. Consequently, educational researchers have long been concerned about the extent to which higher education has been accessible to all students regardless of socioeconomic and racial characteristics. This study examines patterns of attendance at four-year and selective four-year colleges across students from single- and two-parent families. In particular, we examine whether these students differ in their choice of colleges to which they apply, are admitted, and which they attend.

The college-aged population is increasingly characterized by the experience of family disruption. Rising rates of divorce and illegitimate births imply that an increasing number of children either directly experience the breakup of their parents' marriage or never live in traditional two-parent families. Among those children born in 1950, 28% of whites and 60% of blacks had at some time lived with only one (or no) parent by age 17. Of children born twenty years later, 41% of whites and 75% of blacks can expect to live with fewer than two parents by age 17.[1] These figures imply that, in contrast to earlier cohorts, the experience of living in a single-parent home is increasingly common among children growing up in the late 1970s and 1980s.

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As family disruption becomes more prevalent, questions of equity and access arise if children from disrupted families are less likely to apply to and attend four-year colleges and selective four-year colleges. Differences in access might arise from two possible sources. First, disrupted and intact families may differ in the resources they can bring to bear to prepare their children for college. Second, the impact of these resources on college choices of children from disrupted and intact families may differ. Our results suggest that although both influences are present, differences in the levels of resources account for the largest proportion of the difference in the college choices between children from disrupted and intact families.

Review of the Literature

In a general review of the college choice literature, Hossler, Braxton, and Coopersmith (1989) identify several important correlates of college choice. These include family socioeconomic status, student academic ability and achievement, parental levels of education, parental encouragement and support, student educational aspirations about career plans, and quality of the high school. Although many of these factors vary with family composition, little attention is paid in this literature to the role family composition plays in college choices.

There is also some research on the quality of colleges students choose (Baker & Velez, 1996). This literature is predominantly concerned with access to selective colleges. Much attention is given to the income characteristics or the socioeconomic status (SES) of the family of origin of those students attending selective colleges (Kingston & Lewis, 1989; Hearn, 1984). Here, the central question is to which extent elite colleges admit students on the basis of characteristics other than merit. Of course, these colleges and universities have explicitly turned to admissions policies using measures of ability and performance. However, the empirical question is whether these explicit policies are reflected in the characteristics of the matriculating class. Simple bivariate analysis suggests that attendance at highly selective schools is correlated with income and SES characteristics. More sophisticated multivariate analysis indicates that when one holds constant other admission criteria, such as high-school performance, SAT scores, and participation in extracurricular activities, the importance of income and SES fades but remains statistically significant. Although this literature suggests that income and SES play a role, the causation and relationships among the various characteristics that are important are not yet clearly described. The role of family composition in college choice is generally not considered in this literature.

There is a literature that investigates the association between family composition and outcomes for children. In a survey of this literature, McLanahan and Sandefur (1994) summarize studies that consider how child outcomes vary across samples of individuals who lived in one- and two-parent families. Many of these studies investigate not only differences between children from disrupted and intact families but also how differences in outcomes vary across racial groups and with gender and other family characteristics. Some studies also investigate how the timing of disruption is correlated with outcomes. For example, they find that children who spent part of their childhood in single-parent families are more than twice as likely to drop out of high school, but that the risk of dropping out of high school is not significantly affected by the timing of the marital disruption.

In related research, Haveman and Wolfe (1994) study the relationship between economic success of children and a wide variety of life events during childhood. Among their measures of success are the probability of graduating from high school and the number of years of schooling completed. In addition, they examine the probability of obtaining postsecondary schooling conditional on having graduated from high school. Using a very rich set of family background variables, they find that years lived in a single-parent family reduces the probability of graduating from high school in statistically significant ways, but, ceteris paribus, does not statistically affect years of schooling.

In this article we draw from these two literatures to identify the extent to which children from disrupted families are less likely to attend four-year and selective four-year colleges. We distinguish between how children from disrupted and intact families differ in levels of resources and the impact these resources have on college choice. We estimate the association between family composition and four choices in the college decision-making process: the probability that a high-school graduate will apply to, be admitted to, and attend a four-year college or university. Finally, we estimate the correlation between family composition and the probability that a person ever attended a four-year college. We investigate the relationship between family composition and these same four decisions for selective colleges. We measure college selectivity by whether or not it is counted as one of the 50 most selective colleges in the United States, as indexed by *US News and World Report.*

Conceptual Model

In this study we adopt the human capital framework in which students are viewed as educational decision makers. This framework is described by St. John, Paulsen, and Starkey (1996) and by Paulsen (1990). Our interest is in the role that family composition plays within this framework.

We expect college choices to vary with family composition and argue that family structure is a marker for a variety of differences in constraints on choice that are imperfectly measured. These include things like family obligations, ability to obtain loans, the probability of getting financial aid, academic performance in high school, participation in high-school activities, the presence of study skills, and emotional support in the family. Some of these we measure directly, while family structure is used to proxy for the remaining variables.

There are several strands in the conceptual literature that link family structure with educational choices. Human capital theories suggest that children in single-parent families get fewer economic resources such as time, attention, and money. Hypotheses from this literature are sometimes collectively referred to as "economic deprivation" hypotheses. In this literature, it is hypothesized that children who experience disruption consequently perform poorly in school or are unable to finance higher education (Hill, Augustyniak, & Ponza, 1986). Family disruption might increase financial constraints because it effectively "pushes" offspring out of their families of origin and into adult roles at earlier ages. For example, Goldscheider and Goldscheider (1996) find that children in disrupted families leave home at earlier ages and are much less likely to return home. If returning home during college holidays is an important way to save money, then disruption appears to increase financial constraints. Others suggest that marital disruption negatively affects how children are socialized and puts them under greater stress (McLanahan, 1988). The "socialization" hypothesis argues that children perform less well in school because single parents do not spend as much time teaching a child normal rules of behavior. Children consequently get into more trouble in school, especially in dealing with authority. The "family stress" hypothesis argues that the psychological strains accompanying family disruption reduces the ability of the child to concentrate in school and thus reduces performance (Haveman & Wolfe, 1994). This catalogue gives sufficient reason to suspect that college attendance and quality of the college attended will be related to family composition. Although we do not formally test these hypotheses, they amply motivate an empirical association between family structure and college choices.

Differences in college choices of children from intact and disrupted families might arise in two ways. One is that children from disrupted families may have fewer resources than children from intact families. The second is that although the level of resources for both types of children may be the same, the impact of those resources and other explanatory variables may differ between children from intact and disrupted families. For example, a child from a disrupted family may have less access to dollars of family income than a child from an intact family with the same level of income. The different association between family income and college choices can be thought of as a difference in the impact of those resources on college choice. On the other hand, disrupted families may simply have less income.

One way to distinguish empirically between these two explanations is to compare estimates of the impact of explanatory variables between the two groups. Here, the impact of explanatory variables is estimated by the coefficients in our regression equations.

Because the outcomes we study take on either zero or one as values, we estimate the probabilities of various college decisions using probit regression techniques.[2] We estimate models for each of the decisions—application, admission, and attendance. In addition, we estimate a probit equation for whether a student ever attended a four-year college. Finally, we estimate the same set of equations using application, admission, and attendance at selective colleges. We estimate these models for both the disrupted and intact samples.

To explore differences in the impact of explanatory variables, we compare formally the coefficients from each model. If the estimated impact (i.e., set of coefficients) is exactly the same for the two groups, the observed differences must be accounted for by differences in the levels of resources. If the estimated coefficients are different for the two groups, the observed differences could either be exclusively due to differences in the impact of resources or some combination of differences in the impact and differences in the levels of resources. We decompose the observed differences in choices into these component parts. This decomposition allows us to compare the relative importance of each source in the overall difference.

In order to disentangle the effects of the impact of explanatory variables from the levels of those variables, we use the estimated coefficients to run two conceptual experiments. First, we ask, "What probabilities would our models predict for a student who lived with both biological parents, had she behaved 'as if' one or more of her biological parents were missing?" The second experiment turns the tables and poses the analogous question of students who did not live with both biological parents. That is, we conceptually ask, "What probabilities would our models predict for a student from a disrupted family, had she behaved 'as if' both biological parents were present?"

Data

We use data from The High School and Beyond (HS&B) longitudinal survey of 11,995 high-school seniors and 14,825 high-school sophomores interviewed initially in 1980. Follow-up surveys were conducted in 1982 and 1986.[3] Data were collected on high-school performance, individual characteristics, post-high-school plans and activities, including application to, admission to, acceptance of, and attendance at various types of postsecondary educational institutions. In addition, there is a supplementary base-year parent survey from which we drew some data. Finally, the data identify the postsecondary educational institutions to which these students applied. To the HS&B data we append information on the mean SAT scores of entering freshmen at these institutions. In this article we estimate our models using the sample of HS&B seniors and sophomores pooled together.[4]

These data do not offer direct measures of marital status for the students, nor do they provide longitudinal information on marital status. However, the data do offer information about family structure for these students at age 14. Students were also asked to identify the relationship of the people with whom they lived at the time of each survey. Hence we can create a pseudo-marital status variable by noting whether or not the student reported that he or she lives with two biological parents. Because these are self-reported relationships, our measure identifies only those students who report themselves as living with a nonbiological parent. Our measure misclassifies those students who mistakenly report that they live with biological parents, either because they are not aware of the true relationship or because they report the emotional relationship. In cases in which a parent survey was available, we cross-validated our assignment against the family relationships reported by the parent answering the survey. Comparisons of the assignment against the relationships reported by the parent indicate that most students accurately reported the true biological relationship or that the parent also reported the emotional, not biological, relationship.

Anytime we observed that a student did not live with both biological parents while in high school, we assumed some type of marital disruption had occurred at some time during the student's life. After pooling the sophomores and seniors, this rule showed that 67.6% of the sample lived with both biological parents, and 32.4% of the sample were from families in which at least one biological parent was reported to be missing.

We should note that the data for parents' incomes were either estimated by the students or collected in a supplementary interview with the parents. Nevertheless, many observations do not have an income value reported. Typically researchers drop observations when data on any given variable are missing. There are two main issues that arise in such cases. First, when missing data are not randomly distributed with respect to the variable of interest, dropping observations with missing data potentially introduces bias into estimated coefficients. Second, sample sizes are reduced.

In this case, elimination of observations with missing data on family income dramatically reduces sample sizes, particularly for students attending selective schools. Faced with the prospect of eliminating much of the data and the potential of sample bias, we have chosen to predict family income. We have done this by regressing the reported family income against whether the parents are full-time workers, a series of dummy variables indicating the education of the mother and father, the race of the parents, family size, and a series of dummy variables indicating the occupation of the mother and father.[5] This estimate is used to predict an income value for each observation in the sample. In our probit estimates, we substitute predicted income when income was not reported and include a dummy variable which indicates that we have used an estimate of family income for the particular observation.

The independent variables are defined as follows:

Average score: The average score on standardized tests
College SAT: The average of the SAT scores of the students entering the college to which an individual applied
GPA: Student's high-school GPA
Student government: 1 = Student participated in student government; 0 = otherwise
High-school athletics: 1 = Student participated in high-school athletics; 0 = otherwise
Proportion of high-school class going to college: Percentage of last years' senior class attending college
Parents' income: Income of parents
Education of mother less than high school: 1 = Mother's education < high school; 0 = otherwise
Education of father less than high school: 1 = Father's education < high school; 0 = otherwise
Education of mother is more than 16 years: 1 = Mother's education > 16 years; 0 = otherwise
Education of father is more than 16 years: 1 = Father's education > 16 years; 0 = otherwise
Black in the South: 1 = Black, living in the South; 0 = otherwise
Black in the non-South: 1 = Black, not living in the South; 0 = otherwise
White in the South: 1 = White, living in the South; 0 = otherwise
Local wage rate: Local wage rate
Local unemployment rate: Local unemployment rate

Male: 1 = Male; 0 = Female
Urban high school: 1 = High school is in an urban setting; 0 = otherwise
Grade of student in 1980: 1 = Student is a sophomore in 1980; 0 = Student is a senior in 1980
Education of mother is missing: 1 = Mother's education is unreported; 0 = otherwise
Education of father is missing: 1 = Father's education is unreported; 0 = otherwise
Parents' income is unreported: 1 = Parents' income is unreported; an estimate is used; 0 = otherwise
Standardized test score missing: 1= Standardized test score is missing; 0 = otherwise
College SAT missing: 1 = College SAT was unavailable; 0 = otherwise

The means and standard deviations of the variables are shown in Appendix A, Table 1. Note that we flag those students who did not live with both biological parents while in high school by including a dummy variable. To preserve observations with missing data, we also include dummy variables to flag those students for whom we could not identify the education level of the mother, father, and the score on the battery of standardized tests administered to HS&B respondents.[6]

We defined a college to be selective if it was included on the list of the 25 most selective national universities and the 25 most selective national liberal arts colleges from the *U.S. News and World Report* survey of universities and colleges (1991). This list, shown in Appendix B, is compiled considering the selectivity of the student body, the degree to which

TABLE 1
Proportion of Sample Who Apply and Attend College and Selective Colleges by Family Composition

Proportion of Sample	Total	Living with 2 Parents	Not living with 2 Parents
Who apply for college	66.2%	69.1%	60.1%
Admitted to college	60.4	63.8	53.5
as a proportion of applicants	91.4	92.3	89.1
Attended college*	35.7	39.5	27.7
as a proportion of those admitted	59.1	61.9	51.8
Ever attend college	46.2	50.5	37.3
Who apply to selective college	3.6	3.9	2.6
as a proportion of applicants	5.4	5.7	4.3
Admitted to selective college	3.3	3.7	2.3
as a proportion of those admitted	4.9	5.8	4.4
Attended selective college	2.0	2.3	1.2
as a proportion of those attending	5.5	5.8	4.7
Ever attend selective college	2.7	3.2	1.8
as a proportion of those ever attending college	5.9	6.3	4.9

*Attended immediately after high school

the school financially supports a high-quality, full-time faculty, the school's overall financial resources, and the level of student satisfaction. The High School and Beyond data provide the names of the colleges to which the students have applied, been admitted, and which they attended. We created a dummy variable associated with each decision to indicate whether a student applied to, was admitted to, or attended any of the colleges on the list of selective schools. We also appended data to indicate the average SAT score for the freshman class at the schools to which the student was admitted and which the student attended and whether the student was admitted to and/or attended a school with no reported SAT score.

Results and Discussion

Table 1 summarizes the data on college decisions for the samples of students from intact and disrupted families. Overall, 66% of the sample applied to college. Here we cannot distinguish whether students applied to two- or four-year colleges, because the question asked of the students is a general one. Also note that the application question is asked in the year in which students were seniors in high school, that is, in the first interview for 1980 seniors and in the second interview, which occurred in 1982, for 1980 sophomores.

Though we cannot identify if a student applied to a four-year college, we can identify if he or she was admitted to or attended one. Of course, at each point, a smaller proportion of the sample survives. Although 91% of applicants were admitted to some four-year educational institution, this is only 60% of the original sample. Of those admitted, only 59% attended a four-year college (36% of the full sample). Finally, 46% of the total sample attended a four-year college at some time following graduation from high school and during the interview period (six years for 1980 seniors, and four years for 1980 sophomores). Some of these students transferred from two-year colleges; others delayed entering a four-year college after high school.

Figure 1 graphically contrasts the proportion of students at each decision stage by whether or not they lived with two biological parents while in high school.[7] Differences show up at every level. Whereas 69% of students living with two biological parents applied to college, only 60% of those not living with two biological parents applied to college. Of those who applied, fewer were admitted to college if they did not live with two biological parents (89% compared to 92% for those living with two biological parents). Of those admitted, fewer attended a four-year college immediately after high-school graduation if they did not live with both biological parents (52% compared to 62%), and many fewer ever attended a four-year college (37% compared to 51%). Although it is well documented that children from disrupted families acquire less education, it is remarkable that the association shows up at every decision point for postsecondary education.

The differences we observe between disrupted and nondisrupted families are consistent with the evidence from the education literature which finds that children from low-income families are less likely to attend selective schools (Kingston & Lewis, 1989; Hearn, 1989). If disrupted families have lower incomes than nondisrupted families, we would expect to see lower probabilities of attendance at more selective schools for children from disrupted families.

The association between family disruption and college choice is also reflected in the quality of the colleges to which students apply, are admitted, and attend. Figure 2 shows that, conditional on having applied to a college, a student was 33% less likely to apply to a selective college if he or she did not live with both biological parents while in high school (3.9% versus 2.6%). Those experiencing family disruption were less likely to be admitted to a selective school given they applied, and given that they attended any four-year school, they were 20% less likely to attend a selective school immediately after high school and 22% less likely to ever attend a selective school.

The differences shown in Figures 1 and 2 can be decomposed into differences in impact and differences in levels of resources discussed earlier. The equation we use to decompose observed differences is given by:

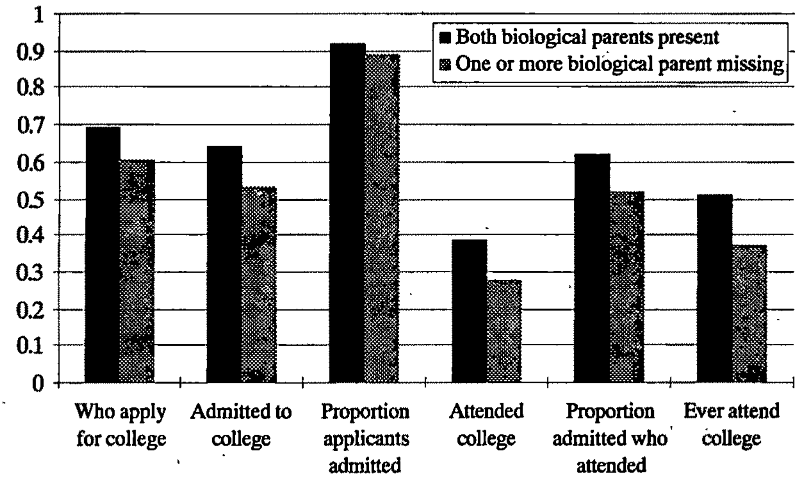

FIG. 1. Mean Probabilities of Applying to and Attending College, by Family Composition

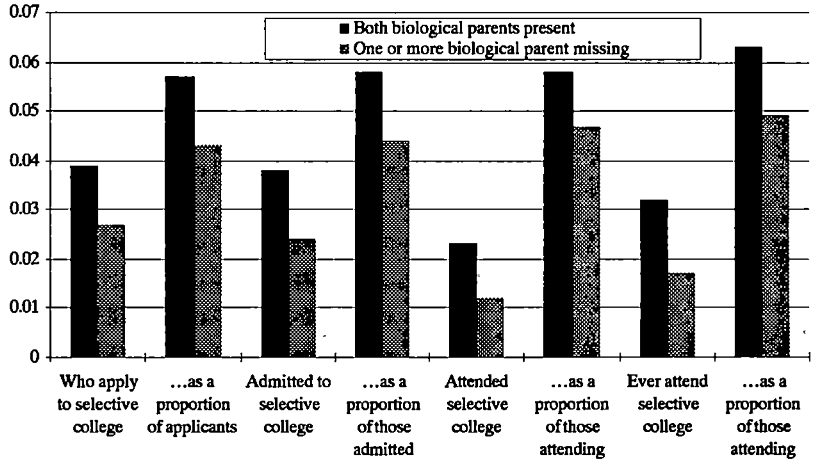

FIG. 2. Mean Probabilities of Applying to and Attending Selective Colleges, by Family Composition

$$\sum_{k=1}^{K} X_{Ik}b_{Ik} - \sum_{k=1}^{K} X_{Dk}b_{Dk} = \sum_{k=1}^{K} b_{Ik}(X_{Ik} - X_{Dk}) + \sum_{k=1}^{K} X_{Dk}(b_{Ik} - b_{Dk})$$

where X_{Ik} refers to the kth variable used to characterize levels of resources among the sample of students from intact families, b_{Ik} is the coefficient estimated on characteristic k in the intact sample, X_{Dk} and b_{Dk} are similarly defined for students from the disrupted sample. The first term on the right-hand side measures differences in predicted probabilities due to differences in the level of resources between these two groups. The second term captures differences due to differences in underlying coefficient estimates. We take these differences to be differences in the impact that resources have on college choice.

We obtain estimates of the coefficients from probit models for each of the probabilities we examine. The estimated probit coefficients are reported in Appendix C.

As a basis for comparison, we present three predicted probabilities in Figures 3–6. In each triplet, the first predicted probability shows the probability that a student from an intact family makes the decision in question. The probability is predicted with the estimated coefficients and levels of resources for students from intact families. The second predicted probability is similarly computed for students from disrupted families using estimated coefficients and levels of resources of students in disrupted families. The third predicted probability uses the levels of resources in one sample and the predicted coefficients of the other sample. The third probability in Figure 3 uses the level of resources of the intact sample and the estimated coefficients of the disrupted sample.

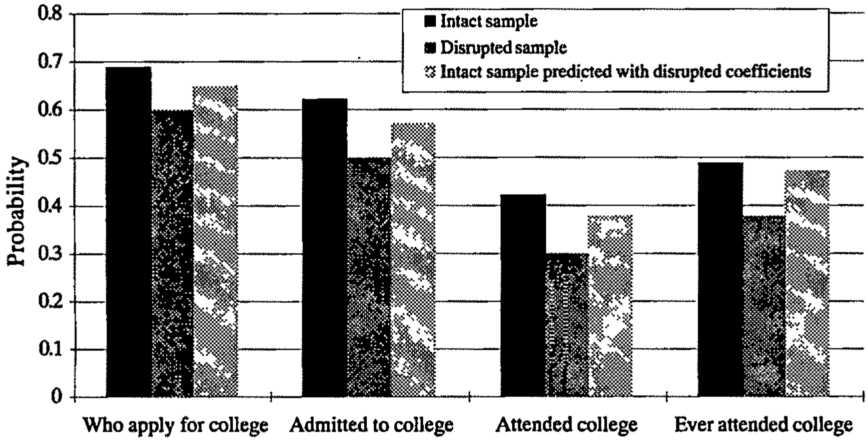

FIG. 3. Decomposition of Differences in Four-Year College Choices (Intact Sample as Reference Group)

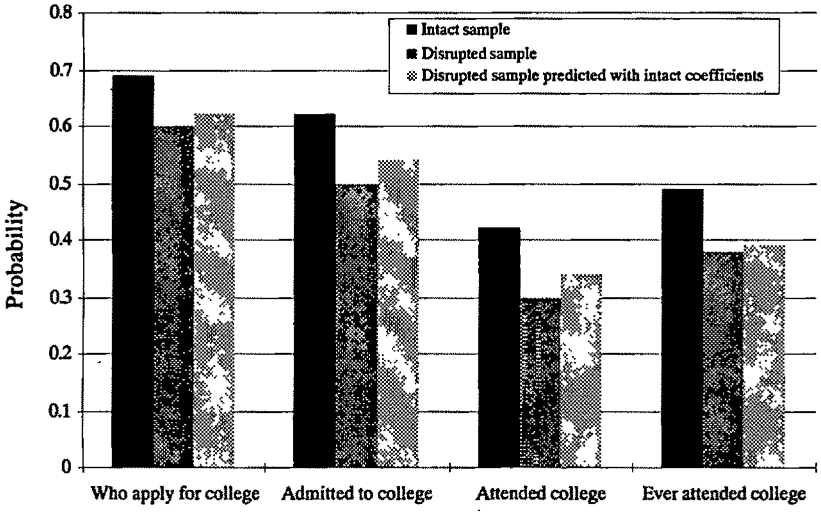

FIG. 4. Decomposition of Differences in Four-Year College Choices (Disrupted Sample as Reference Group)

This probability corresponds to our conceptual experiment in which we ask, "What probabilities would our models predict for a student who lived with both biological parents, had she behaved 'as if' one or more of her biological parents were missing?" The third probability in Figure 4 uses the level of resources of the disrupted sample and the estimated coefficients of the intact sample. These probabilities correspond to our conceptual question, "What probabilities would our models predict for a student from a disrupted family, had she behaved 'as if' both biological parents were present?" This exercise is carried out for college choice more generally (Figures 3 and 4) and also for choice of selective colleges (Figures 5 and 6).[8]

Each probability triplet in Figures 3 through 6 can be used to visually decompose the observed differences in college choices between students from intact families and students from disrupted families. The difference between the first and third predicted probabilities in each triplet is that part of the total difference that can be attributed to differences in the co-

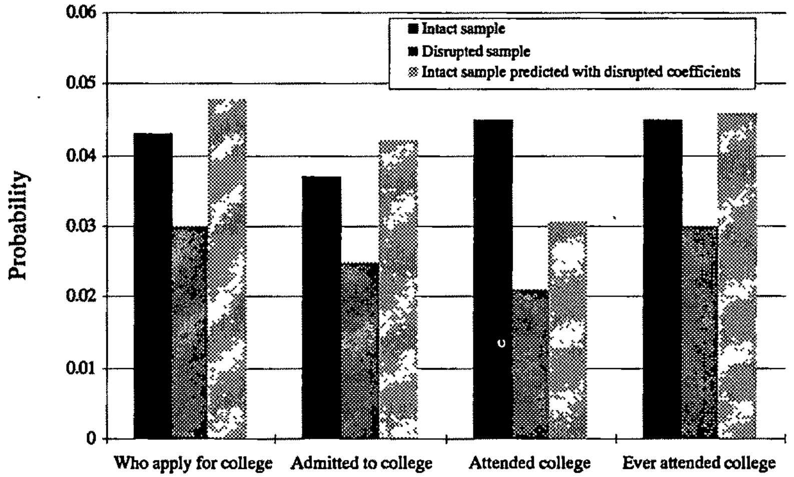

FIG. 5. Decomposition of Differences in Selective College Choices (Intact Sample as Reference Group)

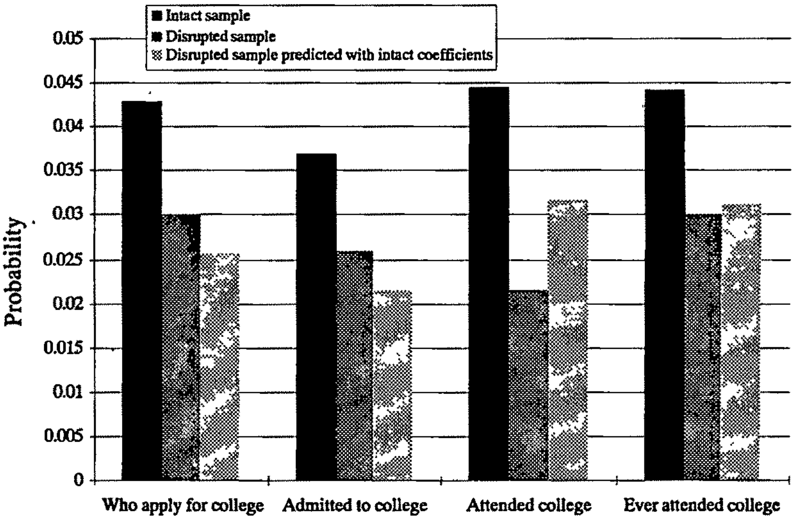

FIG. 6. Decomposition of Differences in Selective College Choices (Disrupted Sample as Reference Group)

efficients. The difference between the second and third predicted probabilities in each triplet is the difference in the total due to differences in the levels of the resources between the two groups.

The decomposition can be done using either the intact students or the disrupted students as the reference group. We present both. If the level of resources were exactly the same, Figures 3 and 4 (Figures 5 and 6) would be identical, because there would only be differences in the impact. Because there are differences in the levels of resources between the two groups, Figures 3 and 4 (Figures 5 and 6) differ. The differences depend on which group is used as the reference. Figures 3 and 5 use the level of resources of students from intact families as the reference, whereas Figures 4 and 6 use the level of resources of students from disrupted families as the reference.

The largest proportion of the difference between the two groups seems to be explained by differences in levels of resources in all cases except in the case of attending a selective college just after high school. In this case, differences in impact account for more than half of the difference in the probability of attendance between students from intact and disrupted families. This result suggests that children from disrupted and intact families respond differently to levels of resources as they decide whether to attend a selective college right after high school.

Formal statistical tests of differences in individual coefficients suggest that the differences in the impact of explanatory variables are mostly associated with the local wage rate, family size, and the question whether a student has a college-educated father.[9] Relative to those from intact families, a student from a disrupted family is less likely to attend a selective college immediately after high school if his or her father is college-educated and if local wage rates are higher. In addition, students from larger intact families and from disrupted families are also less likely to attend a selective college right after high school. However, the association is much stronger for students from disrupted than from larger intact families.

There is evidence to suggest that these differences in the impact of explanatory variables are short-run in nature. The differences in probabilities of ever attending selective colleges appear to be completely explained by differences in levels of resources between students from intact and disrupted families.

Table 2 presents the relative contribution of differences in levels of resources and differences in the impact of explanatory variables. This relative contribution is shown in column 4. These figures represent the ratio of the figures in column 2 to column 3. When this ratio is greater than one, *resource differences* account for a greater proportion of the

Table 2

Decomposition of Differences in Predicted Probabilities, Intact Versus Disrupted Samples

Probability of	1 Total Difference	2 Difference Due to Levels of Resources	3 Differences Due to Impact	4 Ratio of Differences
College Attendance				
Applying	0.090	0.069	0.039	1.75
Admission	0.110	0.074	0.053	1.39
Attending	0.121	0.085	0.045	1.90
Ever attending	0.118	0.096	0.024	4.04
Selective College Attendance				
Applying	0.014	0.017	−0.004	4.57
Admission	0.003	0.015	−0.004	3.36
Attending	−0.005	0.007	−0.018	0.37
Ever attending	0.014	0.014	−0.001	23.54

NOTES: The intact sample is the reference group. Predicted probabilities used to calculate these differences are depicted in Figures 3–6. The demographic difference figures are calculated as $b_I(X_I - X_D)$. The difference in the impact of explanatory variables is calculated as $X_I(b_I - b_D)$. The ratio of differences is the demographic difference divided by the impact difference. The sum of the demographic and impact differences does not equal the total difference because we predicted probabilities for each person and used the average predicted probability to calculate differences (versus predicting probabilities evaluated at the mean demographic characteristics of each sample).

total difference; when this ratio is less than one, *impact differences* account for a greater proportion of the total difference. In all cases but one, a greater proportion of predicted differences is due to a difference in levels of resources. For example, our model predicts that students from intact families will be 9% more likely to apply to college than students from disrupted families. Differences in levels of resources predict about a 7 percentage point (0.069) difference, while estimated differences in impact predict about a 4 percentage point (0.039) difference. The ratio of these is 1.75. Because these ratios do not differ from one by very much, the results suggest that students from disrupted and intact families differ in their general college choices for both reasons cited above. That is, they differ both in levels of resources and in the impact of those resources.

By contrast, the results for selective school choice suggest that the relative contribution from difference in levels of resources accounts for most of the differences in probabilities. The ratios range from 3.36 to 23.5, except in the case noted above for the probability of attending a selective college directly after high school. These results also suggest that the differences in probabilities of selective college choice may be eliminated through policies aimed at mitigating the resource differences between intact and disrupted households. Further research needs to investigate which family resource differences are most important.

Conclusion

This article investigates whether family composition is associated with college choices of high-school students. It posits two general sources of differences; differences in the levels of resources of each group and differences in the impact of explanatory variables on choices of members of each group. The analysis found statistical and substantive differences in the probabilities of general college choices as well as in the choice over quality of schools. In particular, students from disrupted families were less likely to apply to, be admitted to, attend, or ever attend a four-year college. They were also less likely to choose a selective college. Our empirical results suggest that these differences are more closely linked to differences in the demographic characteristics of each group rather than to differences in estimated coefficients. Given the same values of explanatory variables, students from disrupted and intact families make different choices about whether or not to attend a selective college immediately after high school. However, our estimates suggest there is no statistical difference in the impact of explanatory variables on the decision to ever attend a selective college. We do not attempt to settle the question of whether disruption causes these lower probabilities. Observed differences appear to arise because of a complex combination of factors, all of which are correlated with family disruption. These factors may include the general academic aspirations of fellow high-school students, worse performance in school, lower probability of participating in extracurricular activities, lower family incomes and the size of one's family. Though it is plausible to argue that family disruption causes the above negative consequences, it must also be observed that one is more likely to observe disruption among families that are already characterized by having lower income, by having children who perform worse in school, or by being larger families.

There are ways in which social scientists might disentangle these relationships. For example, over the last twenty years the legal environment governing divorce has changed dramatically as has the propensity to divorce. These changes offer the opportunity to observe changes in behavior over time. These changes can be used to compare the relative contributions of the levels and impact of explanatory variables for children of different cohorts. Research in this area would also benefit from data that more fully describes the experience of disruption, including data on the type and timing of disruption and the nature of family relationships before, during, and after disruption. Data on a richer set of resources would also improve our understanding. For example, data on time spent with children, better measures of financial resources and their availability to children, and emotional support received by children would allow researchers to disentangle the underlying determinants of the observed relationships. Such data might be collected through ethnographic studies.

The evidence presented here is also of potential interest to researchers who study how persistence and enrollment of students in college varies with changes in tuition and financial aid. For example, St. John (1990) estimates the effect of aid offers on college enrollment decisions using the HS&B data. Because family disruption complicates the evaluation of a student's financial situation, estimated financial aid offers may systematically vary with family composition in ways not currently captured in the literature. Further, because students from disrupted families may not have the same access to observed family income as students from intact families, the enrollment and persistence decisions of students from disrupted families may be more sensitive to changes in tuition and financial aid offers than students from intact families are. If such associations are identified, they will have significant implications for financial aid and tuition policies.

A primary difficulty in assessing the policy implications of this work is our lack of understanding about the causal determinants of the relationships described above. The evidence presented in this article clearly shows that children from disrupted families are less likely to choose college. They are also more likely to live in families with less education and lower income. They perform worse on standardized tests, participate with lower frequency in school activities, and have more behavioral problems. It remains unclear whether the disruption (or the process surrounding it) causes the lower values on these explanatory variables—and ultimately college decisions—or whether disruption is observed more frequently among families with these lower values. Before a well-informed policy can be constructed, this question needs to be answered. This complex task remains for future work.

APPENDIX A
TABLE 1
Descriptive Statistics

Variable Name	Mean 1982 (Standard Deviation)
Average standardized test score	51.55 (9.09)
College SAT, 1 (÷1,000) ($N = 2364$)	801.52 (99.87)
College SAT, 2 (÷1,000) ($N = 1959$)	1002.35 (43.50
College SAT, 3 (÷1,000) ($N = 1066$)	1187.75 (86.49)
GPA	2.71 (0.67)
Student government	7.5% = yes
High-school athletics	13.5% = yes
Proportion of high-school class going to college	49.92 (22.64)
Parents' income (÷1,000)	$31,987.94 (29,999)
Education of mother less than high school	19.0% = yes
Education of father less than high school	1.9% = yes
Education of mother is more than 16 years	11.9% = yes
Education of father is more than 16 years	17.2% = yes
Black in the South	9.2% = yes
Black in the non-South	7.8% = yes
White in the South	14.1% = yes
Local wage rate	$8.05 (1.51)
Local unemployment rate	8.43% (2.63)
Male	45.8% male
Urban high school	42.7% = yes
Grade of student in 1980	56.5% sophomores
Education of mother is missing	2.4% = yes
Education of father is missing	3.8% = yes
Parent's income is unreported	76.2% = yes
Standardized test score missing	9.4% = yes
College SAT missing	70.0% = yes

APPENDIX B

University/College Name

Harvard University
Yale University
Stanford University
Princeton University
California Institute of Tech.
Massachusetts Institute of Tech.
Duke University
Dartmouth College
Columbia University
University of Chicago
Johns Hopkins University
Cornell University
University of Pennsylvania
Northwestern University
Rice University
Univ. of California at Berkeley
Brown University
Washington University (MO)
Vanderbilt University
Georgetown University
University of Virginia
University of Michigan
Univ. of California at Los Angeles
Carnegie Mellon
Univ. of North Carolina at Chapel Hill
Williams College
Swarthmore College
Amherst College
Bowdoin College
Pomona College
Wellesley College
Wesleyan University
Haverford College
Middlebury College
Smith College
Byrn Mawr College
Carleton College
Vassar College
Claremont McKenna College
Oberlin College
Grinnell College
Colgate University
Mount Holyoke College
Barnard College
Colby College
Davidson College (NC)
Washington & Lee University
College of the Holy Cross
Occidental College
Hamilton College

APPENDIX C

TABLE C1

Probability of Application, by College Quality and Family Composition: Parameter Estimates (and Asymptotic Standard Errors)

	All Four-Year Colleges		Selective Colleges	
	Intact	Disrupted[1]	Intact	Disrupted[1]
Average standardized test score	0.036	0.035	0.051	0.059
	(0.002)	(0.002)	(0.005)	(0.008)
GPA	0.601	0.472*	0.678	0.503
	(0.025)	(0.032)	(0.066)	(0.100)
Student government	0.454	0.253*	0.222	0.503*
	(0.065)	(0.083)	(0.072)	(0.121)
High-school athletics	0.380	0.449	0.066	−0.016
	(0.044)	(0.062)	(0.068)	(0.126)
Proportion of high-school class going to college	0.011	0.008*	0.014	0.015
	(0.001)	(0.001)	(0.001)	(0.002)
Parents' income (÷10,000)	0.024	−0.001*	0.021	0.012
	(0.006)	(0.009)	(0.006)	(0.017)
Education of mother less than high school	−0.125	−0.077	0.139	−0.067
	(0.035)	(0.047)	(0.091)	(0.156)
Education of father less than high school	0.064	0.053	0.012	−0.222
	(0.091)	(0.168)	(0.173)	(0.523)

TABLE C1 (*continued*)

	All Four-Year Colleges		Selective Colleges	
	Intact	Disrupted[1]	Intact	Disrupted[1]
Education of mother is more than 16 years	0.340 (0.049)	0.359 (0.071)	0.430 (0.059)	0.286 (0.112)
Education of father is more than 16 years	−0.061 (0.034)	−0.077 (0.055)	−0.011 (0.067)	0.066 (0.153)
Black in the South	0.352 (0.058)	0.285 (0.056)	0.275 (0.138)	0.060 (0.173)
Black in the non-South	0.252 (0.064)	0.422* (0.062)	0.405 (0.107)	0.437 (0.136)
White in the South	−0.074 (0.040)	−0.089 (0.060)	−0.307 (0.085)	−0.232 (0.157)
Local wage rate	−0.014 (0.010)	0.005 (0.014)	−0.033 (0.020)	−0.066 (0.036)
Local unemployment rate	−0.004 (0.006)	0.004 (0.009)	0.003 (0.012)	0.007 (0.023)
Male	−0.148 (0.028)	−0.241* (0.038)	0.169 (0.055)	0.138 (0.095)
Urban high school	0.101 (0.034)	0.056 (0.042)	0.061 (0.066)	0.098 (0.107)
Grade of student in 1980	−0.345 (0.034)	−0.499* (0.046)	0.254 (0.066)	0.198 (0.114)
Education of mother is missing	−0.051 (0.101)	−0.213 (0.100)	0.511 (0.194)	−0.131 (0.366)
Education of father is missing	−0.001 (0.087)	0.013 (0.076)	−0.092 (0.228)	0.235 (0.169)
Parents' income is unreported	−0.166 (0.032)	−0.180 (0.045)	−0.009 (0.060)	−0.034 (0.107)
Constant	-3.112 (0.132)	−2.719* (0.178)	−7.819 (0.350)	−7.357 (0.597)
Log-likelihood value	−5,700.8	−3,089.0	−1,366.0	−439.9
Sample size	12,135	5,805	8,464	3,351

NOTES: Samples in selective school probits only include students who applied to a college as seniors.
Asterisked coefficients differ statistically from coefficients of intact sample.
CSAT and CSAT2 refer to average SAT score of entering freshman class and the square of the avg SAT.
[1] Coefficients are estimated using a model where all independent variables are interacted with a dummy variable indicating family composition. The standard errors are obtained from separate estimation for intact and disrupted families.
* Disrupted coefficients differ statistically with $p \leq 0.10$.

TABLE C2

Probability of Admission, by College Quality and Family Composition: Parameter estimates (and asymptotic standard errors)

	All Four-Year Colleges			Selective Colleges	
	Intact	Disrupted		Intact	Disrupted
Average standardized test score	0.021 (0.003)	0.011* (0.004)		0.013 (0.016)	0.002 (0.032)
College SAT, 1 (÷1,000)	−1.836 (0.701)	−1.768 (0.834)	CSAT	2.216 (1.273)	5.197 (3.335)
College SAT, 2 (÷1,000)	−1.628 (0.598)	−1.651 (0.702)	CSAT2	−1.860 (0.987)	−4.759 (2.595)
College SAT, 3 (÷1,000)	-1.792 (0.502)	-1.663 (0.595)		—	—
GPA	0.208 (0.038)	0.266 (0.049)		0.627 (0.236)	1.505* (0.476)

TABLE C2 (*continued*)

	All Four-Year Colleges			Selective Colleges	
	Intact	Disrupted[1]		Intact	Disrupted[1]
Student government	-0.012	0.027		0.472	0.356
	(0.074)	(0.106)		(0.290)	(0.507)
High-school athletics	-0.010	-0.015		-0.249	-0.102
	(0.057)	(0.079)		(0.211)	(0.476)
Proportion of high-school class going to college	-0.002	0.001*		0.005	0.000
	(0.001)	(0.001)		(0.004)	(0.009)
Black in the South	0.129	0.084	Black	0.988	1.345
	(0.089)	(0.080)		(0.486)	(0.727)
Black in the non-South	0.005	0.056		—	—
	(0.081)	(0.077)			
White in the South	-0.001	0.046		-0.036	-0.379
	(0.063)	(0.095)		(0.309)	(0.517)
Male	-0.112	-0.140		0.111	0.555
	(0.042)	(0.057)		(0.193)	(0.389)
Urban high school	0.045	0.014		-0.105	0.071
	(0.050)	(0.060)		(0.219)	(0.423)
Grade of student in 1980	-0.093	-0.127		-0.319	0.199
	(0.043)	(0.056)		(0.215)	(0.388)
Standardized test score missing	0.142	-0.170		—	—
	(0.140)	(0.170)			
College SAT missing	-2.421	-2.283		—	—
	(0.600)	(0.706)			
Constant	2.146	2.091		-1.423	-3.080
	(0.606)	(0.717)		(1.091)	(2.199)
Log-likelihood value	-2,313.5	-1,339.7		-118.5	-33.6
Sample size	9,487	4,041		540	165

NOTES: Samples in selective school probits only include students who applied to a selective four-year college. Asterisked coefficients differ statistically from coefficients of intact sample.
CSAT and CSAT2 refer to average SAT score of entering freshman class and the square of the avg SAT.
[1] Coefficients are estimated using a model where all independent variables are interacted with a dummy variable indicating family composition. The standard errors are obtained from separate estimation for intact and disrupted families.
* Disrupted coefficients differ statistically with $p \leq 0.10$.

TABLE C3

Probability of Attendance, by College Quality and Family Composition: Parameter estimates (and asymptotic standard errors)

	All Four-Year Colleges			Selective Colleges	
	Intact	Disrupted		Intact	Disrupted
Average standardized test score	0.031	0.030		0.030	0.058
	(0.002)	(0.003)		(0.008)	(0.018)
College SAT, 1 (÷1,000)	2.046	1.422	CSAT	-9.770	-12.277
	(0.360)	(0.512)		(0.644)	(01.618)
College SAT, 2 (÷1,000)	1.931	1.238	CSAT2	8.524	10.802
	(0.305)	(0.428)		(0.533)	(1.344)
College SAT, 3 (÷1,000)	1.574	0.905		—	—
	(0.269)	(0.379)			
GPA	0.469	0.445		0.626	0.463
	(0.030)	(0.042)		(0.119)	(0.219)
Student government	0.170	0.219		0.094	0.227
	(0.055)	(0.084)		(0.117)	(0.223)

TABLE C3 (*continued*)

	All Four-Year Colleges		Selective Colleges	
	Intact	Disrupted[1]	Intact	Disrupted[1]
High-school athletics	0.249	0.226	0.105	−0.091
	(0.044)	(0.066)	(0.107)	(0.239)
Proportion of high-school class going to college	0.007	0.008	0.012	0.008
	(0.001)	(0.001)	(0.002)	(0.004)
Parents' income (÷10,000)	0.024	0.011	−0.001	0.033
	(0.005)	(0.011)	(0.008)	(0.033)
Education of mother less than high school	−0.048	0.001	0.011	0.453
	(0.044)	(0.062)	(0.151)	(0.288)
Education of father less than high school	−0.056	−0.254	0.061	—
	(0.100)	(0.227)	(0.291)	
Education of mother is more than 16 years	0.204	0.267	0.142	0.317
	(0.046)	(0.074)	(0.097)	(0.217)
Education of father is more than 16 years	−0.058	−0.113	0.017	−0.892
	(0.039)	(0.074)	(0.108)	(0.444)
Black in the South	0.535	0.455	0.290	−0.050
	(0.062)	(0.069)	(0.208)	(0.335)
Black in the non-South	0.348	0.442	0.348	0.266
	(0.067)	(0.071)	(0.158)	(0.282)
White in the South	−0.075	0.025	−0.428	−0.626
	(0.046)	(0.079)	(0.167)	(0.350)
Local wage rate	0.033	0.018	−0.007	−0.155
	(0.011)	(0.018)	(0.033)	(0.077)
Local unemployment rate	0.003	−0.005	−0.040	−0.049
	(0.007)	(0.012)	(0.023)	(0.057)
Male	−0.014	0.045	−0.065	−0.230
	(0.032)	(0.048)	(0.090)	(0.191)
Urban high school	0.169	0.129	−0.047	−0.021
	(0.038)	(0.053)	(0.107)	(0.210)
Grade of student in 1980	0.298	0.150*	−0.238	0.047
	(0.039)	(0.061)	(0.110)	(0.238)
Total family size	−0.016	−0.005	−0.048	−0.192
	(0.007)	(0.009)	(0.026)	(0.062)
Education of mother is missing	−0.377	−0.193	0.657	0.206
	(0.129)	(0.142)	(0.320)	(0.363)
Education of father is missing	0.111	0.066	−0.814	—
	(0.104)	(0.096)	(0.508)	
Parents' income is unreported	−0.022	−0.098	0.024	0.386
	(0.035)	(0.054)	(0.099)	(0.228)
Standardized test score missing	0.036	−0.061	—	—
	(0.071)	(0.110)		
College SAT missing	0.385	−0.299	—	—
	(0.304)	(0.425)		
Constant	−4.935	−4.106	−5.613	5.534
	(0.336)	(0.472)	(0.609)	(1.384)
Log-likelihood value	−4,345.5	−1,905.6	−520.2	119.0
Sample size	9,848	4,508	4,602	1,544

NOTES: Samples in selective school probits only include students who attended a four-year college.
Asterisked coefficients differ statistically from coefficients of intact sample.
CSAT and CSAT2 refer to average SAT score of entering freshman class and the square of the avg SAT.

[1] Coefficients are estimated using a model where all independent variables are interacted with a dummy variable indicating family composition. The standard errors are obtained from separate estimation for intact and disrupted families.

* Disrupted coefficients differ statistically with $p \le 0.10$.

TABLE C4

Probability of Ever Attending, by College Quality and Family Composition: Parameter Estimates (and Asymptotic Standard Errors)

	All Four-Year Colleges			Selective Colleges	
Evattl	Intact	Disrupted		Intact	Disrupted
Average standardized test score	0.040	0.034		0.024	0.033
	(0.002)	(0.003)		(0.007)	(0.013)
College SAT, 1 (÷1,000)	−2.872	−0.786	CSAT	−20.672	−26.085
	(35.083)	(36.875)		(1.439)	(3.698)
College SAT, 2 (÷1,000)	−5.522	−4.440	CSAT2	17.948	22.691
	(2.994)	(2.825)		(1.203)	(3.096)
College SAT, 3 (÷1,000)	−5.411	−4.216		—	—
	(2.569)	(2.437)			
GPA	0.564	0.521		0.549	0.335
	(0.031)	(0.041)		(0.100)	(0.172)
Student government	0.389	0.393		0.002	0.262
	(0.067)	(0.092)		(0.120)	(0.210)
High-school athletics	0.337	0.342		−0.065	−0.275
	(0.051)	(0.070)		(0.108)	(0.235)
Proportion of high-school class going to college	0.013	0.011*		0.014	0.009
	(0.001)	(0.001)		(0.002)	(0.004)
Parents' income (÷10,000)	0.033	0.030		0.011	0.057*
	(0.006)	(0.011)		(0.007)	(0.024)
Education of mother less than high school	−0.135	−0.095		0.151	0.040
	(0.045)	(0.061)		(0.137)	(0.266)
Education of father less than high school	−0.085	−0.258		—	—
	(0.108)	(0.246)			
Education of mother is more than 16 years	0.479	0.374		0.207	0.122
	(0.056)	(0.082)		(0.094)	(0.198)
Education of father is more than 16 years	−0.050	−0.109		−0.048	−0.506
	(0.042)	(0.073)		(0.104)	(0.327)
Black in the South	0.597	0.403*	BLACK	0.197	−0.062
	(0.067)	(0.068)		(0.128)	(0.209)
Black in the non-South	0.361	0.490		—	—
	(0.073)	(0.072)			
White in the South	−0.094	−0.073		−0.240	−0.651
	(0.052)	(0.081)		(0.142)	(0.299)
Local wage rate	0.013	0.001		0.014	−0.115*
	(0.013)	(0.018)		(0.030)	(0.068)
Local unemployment rate	−0.001	−0.008		−0.039	−0.084
	(0.008)	(0.012)		(0.021)	(0.051)
Male	0.020	0.022		−0.111	−0.114
	(0.035)	(0.048)		(0.086)	(0.170)
Urban high school	0.281	0.142*		−0.069	−0.116
	(0.040)	(0.053)		(0.101)	(0.190)
Grade of student in 1980	−0.108	−0.133		0.003	0.343
	(0.041)	(0.059)		(0.102)	(0.209)
Total family size	−0.009	−0.008		−0.038	−0.134*
	(0.008)	(0.009)		(0.024)	(0.049)
Education of mother is missing	−0.151	−0.266		0.827	—
	(0.140)	(0.143)		(0.278)	
Education of father is missing	0.057	−0.086		−1.014	0.028
	(0.106)	(0.097)		(0.458)	(0.329)
Parents' income is unreported	−0.022	−0.037		−0.081	0.266
	(0.040)	(0.055)		(0.094)	(0.206)
College SAT missing	−9.152	−7.351		—	—
	(3.057)	(2.856)			

TABLE C4 (*continued*)

	All Four-Year Colleges		Selective Colleges	
	Intact	Disrupted[1]	Intact	Disrupted[1]
Constant	3.857 (3.060)	2.739 (2.861)	−5.234 (0.522)	−3.671 (1.025)
Log-likelihood value	−3,656.8	−1,856.6	−580.0	−147.2
Sample size	12,591	6,166	5,985	2,137

NOTES: Samples in selective school probits only include all students who "ever attended" a four-year college. Asterisked coefficients differ statistically from coefficients of intact sample.
CSAT and CSAT2 refer to average SAT score of entering freshman class and the square of the avg SAT.
[1] Coefficients are estimated using a model where all independent variables are interacted with a dummy variable indicating family composition. The standard errors are obtained from separate estimation for intact and disrupted families.
* Disrupted coefficients differ statistically with $p \leq 0.10$.

Notes

[1] Of children born in 1950, mortality accounted for 50% of all cases of children living with no parents or with one parent.

[2] Alternatively, one might use logistic regression. Probit and logit models flow from different assumptions about the distribution of the error terms. They yield qualitatively similar results.

[3] Although a 1992 survey is now available, it was not when we conducted the analysis. Our results would not change much, because fewer than 1.9% of HS&B graduates initiated any college decision more than two and one half year after they graduated from high school.

[4] Here and throughout the article we use the terms seniors and sophomores to refer to those HS&B respondents who, respectively were seniors and sophomores in high school in 1980. We pool data measured at the same age for each cohort. Data for sophomores reflect information collected when they were seniors. Separate analyses of each coholrt are available.

[5] Exact variable definitions and regression estimates are available from the authors.

[6] The 1980 sophomore cohort took tests in their sophomore and senior years. We used the tests taken as seniors to preserve comparability.

[7] The numbers depicted are also listed in Table 1.

[8] This method, sometimes referred to as an "Oaxaca decomposition," was used in an early study of male-female wage differentials by R. Oaxaca (1973).

[9] Formal statistical tests show that, although the full set of coefficients of the disrupted sample are jointly different from those of the intact sample in all models, few individual coefficients differ statistically. Individual coefficient differences are noted in Appendix C.

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Book Reviews

Paths to Success: Beating the Odds in American Society, by Charles C. Harrington and Susan K. Boardman. New York: Harvard University Press, 1998. 288 pp. $35.00.

HELEN M. MARKS, The Ohio State University

Who doesn't marvel at the extraordinary climbs individuals like Jocelyn Elders and Clarence Thomas have made from childhoods of extreme economic deprivation to achieve exceptional distinction in their careers? How did they manage to defy the odds? Did their routes to success differ from those of middle-class women and men who have also risen to occupational pinnacles? Charles C. Harrington and Susan K. Boardman asked those questions and others in a careful and probing study of the individuals they call "pathmakers."

Children of parents who did not graduate from high school and whose occupational status was low, the pathmakers grew up in impoverished homes, environments considered poor even by standards in their own communities. Despite the institutional barriers of a socially stratified society, these pathmakers—women and men, Black and white—achieved exceptional success in academic, business, or government careers. Interviewed at mid-career between 1981 and 1984, these individuals were then forty to fifty years old. Having come of age in an era prior to the civil and women's rights movements makes their achievement even more notable.

In nine tightly constructed chapters and two detailed technical appendices, *Paths to Success* reports findings from an exploratory study of 100 highly successful Americans—60 pathmakers and 40 of their equally successful counterparts from advantaged backgrounds, who serve as a comparison group. Both the pathmaker and control groups are half male, half female, half Black, half White, and demographically equal in the distribution of careers, level of success, rural or urban background, and age.

Drawing first on sociological literature to examine research on social mobility and resilience, the authors then focus on psychological studies linked to these same themes—namely, the literature on motivation, personality orientation, and coping styles and strategies. The authors contextualize their study in these two literatures—the subject of the book's first two chapters, where they also establish their work as breaking new ground.

To find clues to the pathmakers' accomplishments, the authors examine the social backgrounds of their subjects and study how their backgrounds might have interacted with their personal resources to create success. They seek to identify any differences and similarities occurring between pathmakers and controls, males and females, Blacks and Whites. Through a thoughtfully designed, lengthy and reiterative interview process keyed to 131 thematically organized questions, the subjects related their life histories, providing the authors with exceptionally rich biographical data portraying subjects' families and communities of orgin, schooling and work histories, current family, health, and psychological makeups.

After first coding the interview data around the variables hypothesized to be relevant to the pathmakers' success, the authors use an array of descriptive statistical techniques to determine whether apparent differences between groups are actually significantly different. If the results meet that criterion, the authors display them in quantitative tables and provide brief interpretive summaries. The findings are then brought to life with illustrative narrative detail taken from the life histories of a subset of eight individuals—four pathmakers and four controls. Of the four female subjects (half of whom are Black), three are highly accomplished academics, one of whom is also a university president. The fourth woman heads a Washington DC lobbying firm. Of the four male subjects (half of whom are Black), two head major investment concerns; the other two, large businesses. To assist the reader in keeping subjects' research identity (i.e., race, gender, and pathmaker or control status) in mind, the authors employ a mnemonic device—the first letter of the first name (B or W) indicates subject race and the first letter of last name (P or C) indicates pathmaker or control status. Thus, Betty Powers is a black female pathmaker; Wendell Curtis, a white male control.

The authors present their intriguing and often surprising findings—comparing main effects and interactions for pathmakers and controls, Blacks and Whites, males and females—in chapters organized around five research areas: family resources; education and schooling; work and careers; spouses, children, friends, and health; and the psychology of unusual success. Many differences among the groups occur in all of these research areas. For example, pathmakers were more likely to have experienced the death of a parent during childhood and to have grown up in a disintegrated family. Perhaps because family resources were thinner for the pathmakers, they were more likely than the controls to view their teachers as important influences. With greater frequency than the controls, pathmakers described themselves as loners in high school, where they also encountered obstacles in their education. When pathmakers and controls were asked to discuss their careers, the pathmakers were more likely to relate internal accounts of their occupational histories, whereas their counterparts typically relied on external accounts. Compared to the controls, pathmakers also tended to be more strongly internal in both their locus of control and their success attributions.

Although differences in the histories related by women and men were relatively few, profound gender differences occurred in the subjects' accounts as they pertained to their created families. Women reported greater costs of success than men did, particularly in their personal relationships. Racial differences were quite pronounced in most of the research areas. Blacks were more likely than Whites to portray their childhood environments as loving, relaxed, religious, and supported by the presence of an extended family.

Personal resources similar to those found in studies of resilient children, the authors conclude, assisted pathmakers, Blacks, and women in their journeys to exceptional success in their careers. Psychological strengths—principally, a strong internal locus of control and high achievement motivation—led these individuals to set standards of excellence for themselves and to be confident in their ability to attain them. Whereas the home environments of the controls offered a redundancy of support, pathmakers were more likely to turn to external resources for support, especially to teachers and schools in their youth and to friendship networks as adults. Compared to the controls, pathmakers also demonstrated a greater tolerance for ambiguity—a trait that sustained them in the change they experienced throughout their lives.

As a study of resiliency in highly successful adults, this study is unique and departs from mainstream research in the disciplines where the authors locate their work — namely, anthropology, sociology, and psychology. While the authors identify policy implications emerging from this exploratory study, they also recognize the importance of building on their work by conducting confirmatory analyses using larger samples. Nonetheless, the present findings have implications, especially for educators, in that they illuminate issues in current policy debates and suggest directions for practice.

Power and Politics: Federal Higher Education Policymaking
in the 1990s, by Michael D. Parsons. Albany: State University
of New York Press, 1997. 254 pp. $59.50 (19.95)

SUSAN B. HANNAH, Indiana University-Purdue University, Fort Wayne

Parson's study of the interactions between the White House, Congress, and the higher education associations during the 1992 reauthorization of the Higher Education Act (HEA '92) and beyond offers a clear-headed, up-close look at the federal policy-making process for higher education. I commend his analysis to faculty, academic administrators, and students of higher education. Too few of us in the higher education enterprise understand how much of our professional lives is shaped by the federal policy process.

The study grew out of Parsons' interest in the discrepancy between what appeared to be the limited power of the higher education lobbying associations and the remarkable growth of programs authorized by federal legislation. He concluded that previous studies of federal higher education policy had largely ignored the issue of power and that his first task was "reconstructing and reclaiming power so that it can be used as an analytical and explanatory concept in policy analysis and research" (p. xi). After developing his own construct, he uses it to interpret the dynamics of federal higher education policy making in the 1990s and to make predictions about the future.

Parsons bases his reconstruction on the "sociology of translation" in which power is to be understood " by interpreting it in the historical and social context in which it is situated" rather than adopting and applying some *a priori* definition. In his review of the conceptual history of power, Parsons argues that neither Hobbe's cause and effect definition, Dahl's pluralist expansion, nor the enhancement of the three "faces of power" idea ever produced a satisfactory

Grand Theory of Power because each focuses too narrowly on legislative concerns with sources and consequences. Parsons prefers the ideas of power "interpreters" who consider how power is obtained, what it does, and how it is maintained. He builds his own construct on power-interpreter John Dewey's ideas of a communication community held together by its ability to solve problems—"the thread that holds collective action together." Power is defined as the ability of the community to successfully address problems within a given policy arena. This ability rests on institutional, social, and value foundations. To the degree that such foundations are stable, the community continues to exist and, by definition, to be powerful. When such foundations become unstable, the community dissolves and, by definition, loses both power *and* meaning, because it is no longer able to "solve problems," e.g., shape policy outcomes.

Parsons uses these ideas to good effect to interpret the 1992 HEA reauthorization process. His informative chapter on the history of federal higher education policy effectively concludes with a list of the shared beliefs that came to define the HEA community by the time of the 1992 Reauthorization—an activist federal role to meet national policy goals; nondiscrimination among sectors; and a priority on student access. Based on a rich collection of interview and primary material, Parsons tells the story of HEA '92 by describing the context, institutional foundations, social relationships, and shared values that together created and constituted the community which shaped the final policy outcome. His identification of the primary actors in Congress (Ford, Godling, Pell, Kennedy, Kassabaum, and their staffs), the associations (especially ACE, NASFAAA, NCHELP, and CCA), and the administration (ED and the White House) and explanation of the consequences of their strong personal relationships are especially illuminating.

The utility of Parsons' power-as-community construct is particularly effective in his interpretation of higher education policy developments since 1992. With Clinton's election, the Republican Revolution of 1994, the explosion of direct lending that prompted a renaissance for the Department of Education, and the dramatic shift from grants to loans, the institutional foundations of the existing community began to crumble. Consequently old policy actors were replaced by new ones, and shared beliefs and values about the role of the federal government in higher education began to shatter into conflicting camps. The old HEA community, Parsons argues, lost its power and its meaning. We are in a now period of re-forming the problem-solving community in higher education policy.

Although the community-as-power construct does provide a useful framework for parsing the dynamics of federal higher education policy making, I do not share Parsons' conviction that other higher education analysts have "ignored" the issue of power. Constance Cook's recent study (1998) of how colleges and universities influence federal policy makes clear that the higher education associations are powerful not only because of whom they talk to, but also because of whom they represent. Few members of congress are without a higher education institution in their districts. Parsons does not give enough attention to this larger context and to the external (read beyond the Beltway) environment. Lindblom and Woodhouse (1993) have called the policy process and "ongoing conversation" in which formal participants serve as "lenses," refracting ideas, pressures, issues, and options from "countless sources" (p. 4.). Other than accepting the "subgovernment" idea, Parsons makes little use of the significant theory building that has developed in the policy analysis literature. Given his theoretical base in communication action theory, for example, he might have found Bryan Jones' *Reconceiving Decision-Making in Democratic Politics* (1994), which connects cognitive science in information processing to existing policy models, a helpful method for relating ideas to his communication communities.

Parsons' use of community as the basic analytical tool (even though I would like him to expand his boundaries even further) makes a contribution both to using power as an analytical construct and to our understanding of the federal higher education policy process. By taking the higher education community metaphor literally, Parsons has provided a heuristic tool for policy analysts in other arenas.

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Strategic Choices for the Academy: How Demand for
Lifelong Learning Will Recreate Higher Education,
by Daniel J. Rowley, Herman D. Lujan, and Michael
G. Dolence; foreword by Robert H. Atwell.
San Francisco: Jossey-Bass. 272 pp. $34.95.

RONALD M. CERVERO, The University of Georgia

The central irony in a book about "choices" is that the academy has "no choice" but to change its ways if institutions of higher education are to survive and prosper in the Information Age. Thus, the book "explores the learning needs of a society that approaches information differently, the opportunities and constraints posed by rapidly changing technology, and ways that higher education is responding to these forces" (p. 6). Not surprisingly for authors who have recently published two books on strategic planning in higher education (Dolence, Rowley, & Lujan, 1997; Rowley, Lujan, & Dolence, 1997), they suggest that strategic planning is the method by which colleges and universities can effectively find their way into the future.

The book is divided into three parts. The first, "Bases for Change," lays out the central message that "Colleges and universities cannot resist the forces for change, though many will try" (p. xvi). The most important change is that the needs of the information age are different from the industrial age, and this dramatically affects what higher education must do. This is the weakest of the three sections inasmuch as nothing particularly new or insightful is offered to the book's audience, most of whom will be very familiar with the arguments offered. Further, we are only presented with the idea of an abstract "information age" as having needs, with little discussion of the flesh-and-blood people who are the bearers of these needs.

Part 2, "Strategic Responses to the Need for Learning," focuses on the emerging models of higher education, both in the United States and around the world, "because the information age is not just an American event, it is a worldwide event" (p. xvii). The authors stress that the academy is particularly well suited to respond strategically to this new age because it is a knowledge-creating organization. Indeed, even as they suggest that institutions must change, they draw a line in the sand: "No matter how great the pressure on the academy to be more responsive to the changing needs and demands of society, the academy cannot afford to abdicate the important role that colleges and universities play in research, in the encapsulation of knowledge, and in its dissemination" (p. 126). But this research dissemination will flow from organizational structures that look very different from today's departments and colleges. The new forms will be much more fluid so as to respond more nimbly to the needs of society and the market: "The new university will become the New University of Organized Responsibility Units in a loose decentralized relationship . . . which will first blossom and then move on to be replaced by new problems and new issues" (p. 124).

The book's third part, "Re-Creating Higher Education Through Strategic Choices," is the most informative and useful section. It is here that we glimpse the authors' visions of the future, with the key point being that "the future will hold a series of models, not a single monolithic standard of higher education that can be imposed, cookie-cutter style, from one campus onto the next" (p. xvii). They explore issues of curriculum, faculty, facilities, and partnerships with other institutions. We are shown many examples of currently existing forms such as corporate universities, virtual universities, a seamless educational system (K-n), student-centered colleges, and perpetual learning colleges and universities. In the final chapter, we learn that strategic planning is essential to making strategic choices about how each individual campus can "achieve a fit based on excellence with the most important forces in the environment" (p. 262).

The book's major strength is the consistent message that colleges and universities can no longer operate in splendid isolation from the wider society. Although this is a critical message, it is hard to believe that many university presidents, deans, and department heads, who are the primary audience for the book, will find news here. Given the book's subtitle, I was expecting a discussion of how the academy was going to become a lifespan learning organization. Yet, we read little about the adults who will populate the re-created university or the literature in adult education and lifelong learning that has been discussing this issue for three decades. Finally, the authors unabashedly suggest strategic planning as the answer for institutions who wish to find niches for serving these new audiences. However, books such as Leslie and Fretwell's *Wise Moves in Hard Times* (1996) offer a much more realistic appraisal of "rational planning's shortcomings" (p. 128) for higher education. They argue that one cannot assume that good strategic choices necessarily, or even typically, flow from the strategic planning process. I believe that the book will serve to reinforce the important message that colleges and universities will re-create themselves to be more responsive to a wider range of human needs. Yet, I finished the book wanting to know about this transformation process in a more concrete way.

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First Among Equals: The Role of the Chief Academic Officer, by
James E. Martin, James E. Samels and Associates. Baltimore, MD:
The Johns Hopkins University Press, 1997. 206+ pp. $39.95

TERRENCE F. MECH, King's College, Wilkes-Barre, PA

The authors of *First Among Equals: The Role of the Chief Academic Officer* remind us that the challenges in higher education's environment call for significant changes in academe. The task of facilitating those changes falls to the chief academic officers, whose growing roles and responsibilities are enumerated in this practical handbook of emerging trends and best practices. The experienced contributors, all current or former chief academic officers, leave no doubt that the nature of this position has changed as colleges and universities compete in an increasingly complex organizational environment. They offer practical advice and guidance to chief academic officers and those who would like to be. Today's provosts, in addition to scholarship, need a more managerial orientation in order to successfully lead, challenge, and transform their institutions.

The book of twelve essays is divided into three sections: The Academic Mission, The Leadership Team, and the Extended Community. The first section examines the relationship of the chief academic officer to the mission of the institution. It begins with a summary of the evolution of the chief academic officer's position from the creation of the dean in 1870 to the development of the current situation, the concept of the provost. The transformation from professor who did some administrative work to the administrator, "second in command," with no time for teaching is symptomatic of higher education's challenges. The historical development provides the context for today's more managerial chief academic officer. The remaining chapters in this section focus on the chief academic officers' core responsibilities, their relationships with the faculty and the curriculum, as well as their critical role in governance, "The Art of Herding Cats."

The second section of the book examines the chief academic officer's relationship with the key positions on the institution's leadership team: the president, the board, student development, enrollment management, and fiscal affairs. These offices and their working relationships with the chief academic officer are vital to his or her ability to function in today's complex institutional environment. The book's two largest chapters are devoted to the provost's working relationships with the president and the board and an understanding of financial management. The provosts' newer responsibilities for the quality of student life and the office's role in the admissions and enrollment management process are outlined.

The book's third section examines the importance of the chief academic officer's relationship with the external community. These chapters remind us that the position's roles and responsibilities extend beyond the campus and that these relatively new relationships contribute to the success of the chief academic officer on campus. The ability to attract funds and friends and keep the institution out of court are important attributes of the modern provost. The potential legal, fund raising, accreditation, or public relations implications of any action are their constant companions. In the "Conclusion: The Disappearing Chief Academic Officer," the book's editors enjoin chief academic officers to "halt the drift" and reshape their campuses "into a more proactive, efficient, and responsive enterprise" (p. 200). They remind us that the stakes are high. The greatest challenge for provosts "will be to overcome those campus forces that simply accept things as they are—and have been. . . . [T]o accept things as they are academically is to move closer to extinction at the hands of institutional competitors aggressively seeking one's student market share" (p. 201).

The concise and focused chapters help to make the book a good read. The individual contributors hold true to the editors' intent of offering practical advice by describing emerging trends and illustrating best practices and providing examples and case studies. The authors are charged to articulate the changes necessary to transform higher education (p. vii). The idea for *First Among Equals* grew out of the editors'—founders of a higher education consulting firm—concern that many chief academic officers were managerially underprepared for the range of their responsibilities and the challenges of their jobs (p. 205). The book continues in the pattern of James Martin and James E. Samels's first book, *Merging Colleges for Mutual Growth,* which also offers advice by experienced practitioners and positive suggestions to facilitate change.

A theme that runs through all of the chapters is that significant change is necessary, yet difficult to achieve. The authors believe that chief academic officers must assert effective leadership and use good management practices to create the necessary changes to meet the increasing needs of demanding constituencies. In that sense, *First Among Equals* is one of several books published in the last few months with similar strategic messages for change. William Tierney, in *The Responsive University,* believes, "Instead of improving a system that exists, we want to challenge old ways of thinking and acting in academe by proffering suggestions about new ways of thinking and hence acting, in postsecondary education" (p. 3). Other recent related works include Paul Trowler's *Academics Responding to Change,* Burton Clark's *Creating Entrepreneurial Universities,* Gary Rhoades's *Managing Professionals,* as well as *Planning and Management for a Changing Environment* by Marvin Peterson, David Dill, and Lisa Mets. Annette Kolodny, in *Failing the Future,* uses her personal and professional experiences to talk about the changes higher education needs to make. *First Among Equals* places the responsibility for change on the chief academic officer.

First Among Equals "closes with a bibliography of pertinent readings on the position of chief academic officer" (p. x). However, the editors' selections suggest a broad view of what is pertinent. An introductory description of the selection criteria or a focused grouping of titles by subject would help to make this a more useful bibliography. Although some of the suggestions given by the contributors may be taken for granted by veterans, the book does provide a clear view of the chief academic officer's expanded roles and responsibilities for those seeking to understand the position and our heightened expectations of the incumbents.

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Quality Principles and Practices in Higher Education,
by Jann E. Freed and Marie R. Klugman. Phoenix, AZ:
Oryx/ACE Press, 1997. 280+ pp. $34.95.

ADA DEMB, The Ohio State University

One of the biggest challenges facing those who would like to learn (or teach) about quality in higher education is to find texts that provide broad-based illustrations within our industry and, furthermore, to find examples from the academic side of the enterprise. Freed and Klugman have succeeded in providing a resource that meets these requirements. This book uses research on institutional experiences with quality improvement programs to build a framework for analyzing and approaching the implementation of CQI. The book is useful for faculty in their teaching roles, for faculty qua administrators, and to their professional administrator colleagues.

Freed and Klugman's approach is essentially an organization development approach to CQI. Taking a systems view of higher education, the authors identify the external and internal *drivers* for the quality initiative and then trace the elements of successful efforts through the critical organizational components: goal-setting (mission and vision), team-building, leadership, culture, human resource development (faculty, students, and administrators), and communication. Their perspective of understanding and implementing organization change leads naturally to the inclusion of a very powerful chapter on "barriers" to system development and implementation. The twelve "lessons learned" discussed in the last chapter resonate with the hallmarks of effective organizational change efforts researched and documented over the past thirty years.

This integrative, behavioral, discussion of quality initiatives in higher education is based on several years of research conducted through a substantial questionnaire survey, and in-depth site visits to ten institutions. The sites were selected to "cover a wide variety of institutions that had some degree of success with the implementation of quality principles," and include research- and teaching-focused institutions, four-year public, four-year independent, and two-year community colleges (p. xiv). At nine of the institutional sites, more than 20 individuals were interviewed. With this broad base of research, the authors overcome the limitations of previously published work in this area, which often relied on a small set of—now—somewhat overworked case studies, or illustration through anecdotes—the result of the limited institutional experience then available for study.

Further, much of the earlier work reported on quality programs only in the administrative domains—which were the first initiatives, whereas Freed and Klugman sought out academic applications as well. They pull no punches in relating the central difficulty of academic application: "The faculty tend to be the most resistant to continuous improvement. . . . There seems to be a constant conflict between administrators and staff members who are frustrated because of their perception that faculty members will not participate in the development processes and faculty members who are feeling 'left out,' operating with a lesser knowledge base about continuous quality improvement" (p. 65). This section goes on to outline the three most important lessons learned in designing development systems for faculty and to discuss those in depth, with illustration from the site research.

The book is well organized, and the organization is made apparent from the outset. The twelve "lessons" that emerged from the on-site interviews are listed in the Preface, following Figure 1, which provides a content-laden road map to the entire book (p. xvii). The discussion is structured into six chapters, each addressing a central question: How did the quality improvement journey in higher education begin? What are the drivers for the quality movement? What are the systems that institutions have developed and implemented? What are the barriers to systems development and implementation? What are the outcomes of adopting quality principles and practices? What lessons have been learned? In addition, the five appendices give detailed information regarding the research sites, participants, instruments, and results. Thus, not only do the authors present their distillation of the research, but they also give the reader the survey questionnaire, as well as a summary of responses.

The book makes a valuable contribution to our understanding of the organizational dynamics associated with continuous quality improvement. Anyone seriously considering initiating a CQI program should read it. It should not be be used alone, however. First, although Chapter 1 offers some background, it does not appear to have been intended to provide a history of the quality movement. And as a result, the book works best when coupled with one of the more foundational works in this field, e.g., Daniel Seymour's *On Q* (1992), or even Hammer & Champy's *Reengineering the Corporation* (1993). And second, this is not a "how to" manual for would be CQI leaders. More detailed, step-by-step approaches to defining visions, objectives, setting up teams, and specifying measurements can be found elsewhere in the literature (see, for example, Lewis & Smith, 1994). However, starting with a step-by-step manual without having first digested the learnings synthesized by these authors would be like assuming that instructions on how to prepare a lesson plan will suffice to guide you through the complexities of the teaching experience.

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